

ABSTRACT

Title of Thesis: Cultivating Connection: Strategies For Continuity In
Baltimore City

Name of degree candidate: Renata L. Southard

Degree and Year: Master of Architecture, 2017

Thesis directed by: Karl Du Puy, Professor Emeritus
School of Architecture, Planning, and Preservation

This thesis examines options for a site in Baltimore City that could benefit from better physical and social connectedness. Baltimore is uniquely positioned to re-evaluate its urban design strategies and apply new concepts for inclusion of green infrastructure. North Avenue has been slated as an important link in the Baltimore Green Network Plan, and offers an opportunity to strengthen networks of existing amenities, improving community connectedness in doing so. The thesis proposes interventions at three scales: diagrammatic, dimensional, and detail scale. At the diagrammatic scale, this thesis explores and critiques the urban context. At the dimensional scale, it proposes bridges and park to improve access to existing larger networks. At the detail scale, program for improved social connection of residents is introduced. The resulting thesis incorporates and builds upon networks to promote connectedness of residents to each other and to amenities in the neighborhood.

**Cultivating Connections: Strategies For Continuity
In Baltimore City**

By

Renata Louise Southard

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park in partial fulfillment
of the requirements for the degree of
Master of Architecture

2017

Advisory Committee:

Professor Emeritus Karl Du Puy, Chair

Professor Steven Hurtt

Professor Brian Kelly

Professor Carl Bovill

© Copyright
Renata Louise Southard
2017

Dedication

This thesis is dedicated to my older brother, Adam C. Johnson. His neuro psychology research in the area of sensory perception impacted my interest in the perception and use of public space, and informed my research process. Additionally, he is the most determined person I know, and inspired me to persist during difficult moments.

Acknowledgements

I would like to thank my committee for the effort and guidance of each member.

Professor Steven Hurtt assisted with the research and site selection. Professor Brian Kelly guided the development of the site and the building proposal. Professor Carl Bovill acted as a critic at critical moments and offered technical guidance.

Professor Karl Du Puy acted as chair of this project. His devotion to the thesis process is unmatched, and cannot be understated. His willingness to act as a mentor on this project has benefitted my education in countless ways, and I am extremely grateful for his guidance, patience, wisdom and vision.

Table of Contents

ABSTRACT	I
CULTIVATING CONNECTIONS: STRATEGIES FOR CONTINUITY IN BALTIMORE CITY	II
DEDICATION	II
ACKNOWLEDGEMENTS	III
TABLE OF CONTENTS	IV
LIST OF APPENDICES	VI
LIST OF FIGURES	VII
INTRODUCTION	1
CHAPTER 1: IMPORTANCE OF CONNECTIVITY	5
CONNECTIVITY	5
SOCIAL COHESION	6
PUBLIC HEALTH	7
CHAPTER 2: STREET NETWORKS AND CONNECTION	9
NETWORKS AND CONNECTIONS	9
STREET TYPES	9
APPROACHES TO STREET DESIGN	13
STREET PRECEDENT	16
CHAPTER 3: SITE CONTEXT	23
BROAD EVALUATION OF THE AREA	23
CHAPTER 4: URBAN DESIGN STRATEGIES	30
OPTION 1: ADDRESS THE ENDS	30
OPTION 2: STRENGTHEN CONNECTION ACROSS	31
OPTION 3: ACTIVATE THE STREET	32
OPTION 4: IMPROVE METRO STATION	35
OPTION5: ADDRESS NORTH AVENUE BRIDGE	36
CHAPTER 5: SITE SELECTION	41
SITE SELECTION	41
CONTEXT: NEIGHBORHOODS	42
SITE HISTORY: NEIGHBORHOOD DEVELOPMENT	42
SITE ANALYSIS	47
CHAPTER 6: STAKEHOLDERS	52
INVOLVED RESIDENTS	52

MIIIC/A STUDENTS	53
SCHOOL KIDS	54
SENIOR CITIZENS	54
WEEKEND VISITORS.....	55
PROGRAMMATIC DEMANDS	55
CHAPTER 7: PROGRAM.....	57
PROGRAM OBJECTIVES	57
PROGRAM SUMMARY – RE-PACKAGING THE EXISTING BUILDING.....	58
PROGRAM – EXISTING AND ACCESSIBILITY	60
PROGRAM SPECIAL PROBLEMS AND ISSUES	61
PROGRAM DESCRIPTION	62
CHAPTER 8: SCHEMATIC DESIGN.....	67
PROCESS	67
CHAPTER 9: DESIGN	86
FINAL DESIGN	86
APPENDICES	97
APPENDIX A: BALTIMORE GREEN NETWORK VISION PLAN	97
APPENDIX B: CENSUS TRACT DATA	99
APPENDIX C: NEIGHBORHOOD LAND USE, TRANSPORTATION AND ACCESS	104
APPENDIX D: SURVEY RESPONSES	107
APPENDIX E: LIST OF PRECEDENTS USED	112
BIBLIOGRAPHY	113

List of Appendices

Appendix A: The Baltimore Green Network Plan

Appendix B: Census Tract Data

Appendix C: Neighborhood Resources and Transportation Access

Appendix E: Program Questionnaire for Residents

Appendix F: List of Precedents

List of Figures

<i>Figure 1 Selection of active streets.....</i>	<i>1</i>
<i>Figure 2 Example of a boulevard type in Baltimore City.....</i>	<i>10</i>
<i>Figure 3 Example of an avenue type in Baltimore City.....</i>	<i>11</i>
<i>Figure 4 Example of a main street type in Baltimore City.</i>	<i>12</i>
<i>Figure 5 Example of an alley type in Baltimore City.</i>	<i>12</i>
<i>Figure 6 Example of a woonerf type in Baltimore City.....</i>	<i>13</i>
<i>Figure 7 Street section sketches by author, Stockholm, Sweden.....</i>	<i>14</i>
<i>Figure 8 Figure Ground, Boston, MA.....</i>	<i>20</i>
<i>Figure 9 Section, Tremont Street, Boston, MA.....</i>	<i>20</i>
<i>Figure 10 Figure Ground, Minneapolis, MN.....</i>	<i>21</i>
<i>Figure 11 Section, Hennepin Avenue, Minneapolis, MN.....</i>	<i>21</i>
<i>Figure 12 Figure Ground, Baltimore, MD.</i>	<i>22</i>
<i>Figure 13 Section, North Avenue, Baltimore, MD.....</i>	<i>22</i>
<i>Figure 14: Site Location.....</i>	Error! Bookmark not defined.
<i>Figure 15: Neighborhood Boundaries.....</i>	<i>23</i>
<i>Figure 16: Boundary edges as perceived by author.....</i>	<i>24</i>
<i>Figure 17: Neighborhood districts as perceived by author.....</i>	<i>25</i>
<i>Figure 18: Path and Direction.....</i>	<i>26</i>
<i>Figure 19: Edge, Space Negative.....</i>	<i>26</i>
<i>Figure 20: Edge, Space Positive.....</i>	<i>27</i>
<i>Figure 21: Nodes.....</i>	<i>28</i>
<i>Figure 22: Landmarks.....</i>	<i>29</i>

<i>Figure 23 Improved Connection Across North Avenue</i>	<i>31</i>
<i>Figure 24 Precedent for activating the street.</i>	<i>32</i>
<i>Figure 25 Additional program disbursed along North Avenue.....</i>	<i>33</i>
<i>Figure 26 Section through North Avenue.....</i>	<i>34</i>
<i>Figure 27 Plan for activating North Avenue.....</i>	<i>35</i>
<i>Figure 28: A highly visible metro station</i>	<i>36</i>
<i>Figure 29: Existing North Avenue Bridge</i>	<i>37</i>
<i>Figure 30: Precedent images for creating a bridge-park.....</i>	<i>38</i>
<i>Figure 31: Transform North Avenue Bridge to a Market Street.</i>	<i>39</i>
<i>Figure 32: Add an object building to promote movement between elevations.....</i>	<i>40</i>
<i>Figure 33: Aerial View of Site.....</i>	<i>41</i>
<i>Figure 34: Neighborhood Character.....</i>	<i>42</i>
<i>Figure 35: Diagram of Grid Orientations</i>	<i>43</i>
<i>Figure 36: Maryland College Institute of Arts Campus</i>	<i>44</i>
<i>Figure 37: Location of Senior housing and Jones Falls Trail</i>	<i>46</i>
<i>Figure 6: Organizing Diagram with Barriers</i>	<i>48</i>
<i>Figure 7: Organizing Diagram with Design Solution Strategies.....</i>	<i>48</i>
<i>Figure 40: Understanding the Site - Edges.....</i>	<i>49</i>
<i>Figure 41: Understanding the Site – Axes</i>	<i>49</i>
<i>Figure 42: Understanding the Site - Space</i>	<i>50</i>
<i>Figure 43: Understanding the Site – Topography and Existing Buildings</i>	<i>50</i>
<i>Figure 44: Site Plan – Existing</i>	<i>51</i>
<i>Figure 45: Enlarged Site Section – Existing</i>	<i>51</i>

<i>Figure 46 Diagram of Program Demand by User Group.</i>	56
<i>Figure 47 Program Objectives</i>	60
<i>There are some programmatic elements that exist in the neighborhood, but are inaccessible due to poor visibility or navigation issues. Figure 48 Program Objectives</i>	60
<i>Figure 49 Program on site – Option A.</i>	67
<i>Figure 50 Program on site – Option B.</i>	68
<i>Figure 51 Program on site – Option C.</i>	68
<i>Figure 52 View of Existing Building</i>	69
<i>Figure 53 Plan of the Existing Building with Site Context</i>	69
<i>Figure 54 Floor Plans - Existing Building</i>	70
<i>Figure 55 Sections- Existing Building</i>	71
<i>Figure 56 Diagrams – Options for Comingling Old and New</i>	71
<i>Figure 57 Site Explorations – Creating a Path to the Light Rail Stop</i>	73
<i>Figure 58 Site Explorations – Adding Density to the Neighborhood</i>	73
<i>Figure 59 Site Explorations – Combining Path and Infill</i>	74
<i>Figure 60 Site Explorations – Adding Green Space and Bike Lanes</i>	74
<i>Figure 61 Site Explorations – Adding Density and Diversifying Use</i>	75
<i>Figure 62 Site Explorations – Adding Green Space and Bike Lanes</i>	75
<i>Figure 63 Site Explorations – Options for Pedestrian Bridges</i>	76
<i>Figure 64 Parking Garden Development</i>	77
<i>Figure 65 Formal Studies</i>	78
<i>Figure 66 Formal Studies</i>	79

<i>Figure 67 Plan Studies.....</i>	<i>80</i>
<i>Figure 68 Plan Studies.....</i>	<i>81</i>
<i>Figure 69 Plan Studies.....</i>	<i>81</i>
<i>Figure 70 Section Studies</i>	<i>82</i>
<i>Figure 71 Neighborhood Architectural Languages.....</i>	<i>82</i>
<i>Figure 72 Sketch – Strategies for Unifying.....</i>	<i>83</i>
<i>Figure 73 Façade Studies</i>	<i>84</i>
<i>Figure 74 Elevation Studies</i>	<i>85</i>
<i>Figure 75 Aerial Rendering of the Site</i>	<i>86</i>
<i>Figure 76 Keyed Site Plan.....</i>	<i>87</i>
<i>Figure 77 Keyed Site Plan.....</i>	<i>89</i>
<i>Figure 78 Ground Level Floor Plan</i>	<i>89</i>
<i>Figure 79 Floor Plan with Program – Level -2</i>	<i>90</i>
<i>Figure 80 Floor Plan with Program – Level -1</i>	<i>91</i>
<i>Figure 81 Floor Plan with Program – Level 0.....</i>	<i>91</i>
<i>Figure 82 Floor Plan with Program – Level +1</i>	<i>92</i>
<i>Figure 83 Floor Plan with Program – Level +2</i>	<i>93</i>
<i>Figure 84 Floor Plan with Program – Level +1</i>	<i>93</i>
<i>Figure 85 Path Map and View of Destination</i>	<i>94</i>
<i>Figure 86 Path Map and View of Destination</i>	<i>94</i>
<i>Figure 87 Path Map and View of Destination</i>	<i>95</i>
<i>Figure 88 Path Map and View of Destination</i>	<i>95</i>
<i>Figure 89 Path Map and View of Destination</i>	<i>95</i>

Figure 90 Landscape Section..... 96

Figure 91 Existing Land Use and Massing..... 104

Figure 92 Proposed Land Use and Massing 104

Figure 93 Existing Transportation Networks 105

Figure 94 Proposed Access Diagram 105

Figure 95 Existing Neighborhood Amenities 106

Figure 96 Large Land Use Map 106

Introduction

Cities are comprised of networks of streets, buildings, people, and places. The public realm is a network of streets and places, such as parks, plazas, and piazzas. These networks and the public places within them will either encourage or discourage activity. Streets can either unite or divide neighborhoods; good streets will act as strong networks and unite people with amenities and with each other, and provide the opportunity for good experiences. The best streets act as connectors for pedestrians of all ages and abilities, bicyclists, and motorists.



Figure 1 Selection of active streets.

L-R: Boston, MA, USA; Istanbul, Turkey; Stockholm, Sweden. Photos by author

In many circumstances, streets act as dividers, severing neighborhoods and communities from one to another; in the most extreme cases, streets can be dangerous to cross and cut off connections to valuable neighborhood amenities. These divider streets do not act as networks. They can deter residents from walking or riding a bicycle to nearby destinations, otherwise reachable on foot, forcing residents to drive or avoid these destinations all together.

The city of Baltimore is currently looking at strategies to improve connectedness, and has recently proposed a strategy for reverse engineering a network of parks and green infrastructure into the city. Currently, many of the communities in the city are not connected to this type of amenity, but the city has identified vacant buildings and lots that could be transformed into parks and green infrastructure. North Avenue has been slated as an important corridor in the Baltimore Green Network Plan, and this thesis explores options for improving the street conditions of North Avenue.

To develop a strategy for street improvement, this thesis utilizes a number of definitions from experts to analyze different types of street networks. It introduces several ideas about safe and effective urban design, and builds on existing theory. This thesis also embraces an approach to design that preferences the specific site and the immediate community. The project evolved as a response to existing site conditions and user surveys.

Chapter one reviews research on the effects of urban space on neighborhood wellness. Metrics and data are analyzed for use in developing a design strategy for the specific site.

Basic street types and theories are introduced in chapter two; examples of street types are presented and analyzed as a method to better examine the thesis site.

Chapter three analyses the context of the thesis site; it is located on North Avenue in Baltimore City. The history and physical context are necessary for a full understanding of the current challenges with the site, and are briefly discussed. Other challenges, such as walking distance and connectedness to larger transportation networks are also introduced in this chapter.

Chapter four covers the different activities of networks, and examines design strategies to encourage activity. Each strategy is accompanied by a short description and a precedent to further evaluate intervention types and design approaches with similar aims in similar urban contexts. Potential design strategies are presented to introduce new activities to North Avenue, and to explore strategies to strengthen connections. This process is used to speculate on the effects of various interventions, and begins to examine *how* physical environments result in user responses.

Chapter five introduces potential stakeholders, basic demographics of the neighborhood, locations of amenities used by stakeholders, and approach to information gathering. This section also covers research methods for collecting data and examines the different programmatic options against stakeholder feedback.

Chapter six examines the physical characteristics of the site, and provides an in-depth analysis of topography, existing conditions, climate, environmental concerns, codes and zoning.

Chapter seven discusses the program in more detail. The process of selecting a program is covered in this chapter, and an overview of the program layout is described in detail, along with the square footage requirements for the selected program.

Chapters eight, nine and ten deal with design and conclusion. Chapter eight covers schematic design alternatives, and analyzes each within the context of the neighborhood. Chapter nine develops one strategy in greater detail, and chapter ten reflects on the chosen design and offers closing thoughts to conclude this thesis. Additional readings on any of the topics presented in this thesis can be found in the bibliography section of this document.

This thesis focuses on how networks encourage or discourage connection within communities. Social connection is fostered by physical networks. The function and quality of space in the physical networks will impact how users move through, stay in, or choose to avoid places and should be considered as a highly important factor in cultivating connections.

Chapter 1: Importance of Connectivity

Connectivity

Baltimore City acts as a network of streets and spaces. Some of the most important factors related to connectedness are social cohesion, public health and transportation. The Baltimore Office of Sustainability has recently developed a plan to support and strengthen its network of green spaces to promote social engagement (*Appendix A*) and physical activity, and to relieve negative effects of the traditional concrete city.¹ Factors such as dangerous streets, interruptions in the urban grid, and distance between desirable destinations plague many of Baltimore's neighborhoods. Small interventions placed strategically can help to mend interruptions in the network, and together, can begin to stabilize and strengthen neighborhoods.

Some Baltimore neighborhoods are thriving due to good connectivity; however, many others have been severed from important amenities by freeways or other industrial uses. This thesis focuses on one such neighborhood. The site, located at North Avenue and North Howard Street, was selected for its complexity and its potential. It lies at the intersection of two busy arterial roads, in the midst of an old industrial corridor adjacent to the Jones Falls Trail. The City has made a concerted effort in the past years to improve the trail,² making it a popular piece of green infrastructure where residents from different neighborhoods mix. The site has untapped potential for connecting residents with each other and with green infrastructure.

1 "Green Network." Baltimore Office of Sustainability. Accessed October 19, 2017.
<http://www.baltimoresustainability.org/projects/green-network/>.

2 Comebackcity.us, "Part Three Improvements," Jones Falls Trail, October 13, 2015, accessed October 19, 2017, <https://jonesfallstrail.us/2015/09/02/jones-falls-trail-part-three-improvements/>.

Social Cohesion

During the course of research, social cohesion emerged as a critical factor for network strength. Humans are social animals – disconnection and loneliness can have adverse effects on mental and physical health³ and lead to further unraveling of social networks.

“Analysis of data from a population-based, racially diverse sample of men and women aged 50 through 68 revealed several factors were positively associated with loneliness. These included number of physical symptoms, chronic stress from employment, and chronic stress from social life and recreation. Factors negatively associated with loneliness included social network size, satisfaction with social network, and having a spousal confidant (Hawkley et al., 2008). These results suggest that the success of interventions to reduce loneliness may hinge on the degree to which one’s social environment and social interactions are improved.”⁴

Research shows that loneliness is due only in part to social isolation; loneliness stems mostly from the quality of relationships and feelings of connectivity than number of relationships.⁵ Interestingly, loneliness is like other communicable diseases in the fact that it can be contagious has the ability to spread.⁶ However, loneliness can be treated. Directed interventions have been shown to help to reduce the spread of loneliness. Targeted actions can enhance social connectivity and provide opportunities for social

3 Masi CM, Chen HY, Hawkley LC, and Cacioppo JT. “A Meta-Analysis of Interventions to Reduce Loneliness.” *Personality and Social Psychology Review: An Official Journal of the Society for Personality and Social Psychology, Inc* 15, no. 3 (2011): 220.

4 Masi, 221.

5 Masi, 221.

6 Masi, 222.

interaction. Effective strategies include providing an educational component or directed activities, which can alleviate tension and lead to informal support networks and identification of shared interests.⁷ This thesis posits that group cohesion and social connectedness can be promoted through proper programming.

Public Health

The understanding of public health and its relationship to environmental context has changed drastically during the past century. In the 1920s, the Regional Planning Association of America (RPAA) was formed to help direct policy makers and developers in the areas of public health and affordable housing. The group relied heavily on Ebenezer Howard's model of the garden city, developed as a response to the conditions of the industrial city. However, policy makers have not further evolved to address the current landscape of public health.⁸ Unlike a century ago, the leading causes of disease today are not from communicable illness, but rather from lifestyle choices and daily habits.⁹ The Centers for Disease Control and Prevention produced a study of health data in 1999 showing that "sedentary lifestyle was the most common modifiable risk factor for coronary heart disease" (the leading cause of death in the United States), even more than obesity and tobacco use.¹⁰

In a paper titled "*Environmental and policy interventions to promote physical activity*," researchers James Sallis, Adrian Bauman and Michael Pratt showed that policy

⁷ Masi, et al, 223.

⁸ Lawrence Frank, Peter O. Engelke, and Thomas L. Schmid. 2003. *Health and Community Design: The Impact of the Built Environment on Physical Activity*, 29.

⁹ Masi, 36.

¹⁰ Frank, et al, 43.

and the built environment influence levels of physical activity.¹¹ Proximity, quality, and perceived safety are environmental conditions that encourage or act as barriers for people. What is especially significant about this body of research is the intersection with historical ideas about *how* exercise benefits health. A common assumption that only high-intensity workouts benefit health was disproven when, in 1996, the U.S. Department of Health and Human Services determined that low intensity exercise have positive impacts on health.¹² This finding showed that utilitarian exercise – walking and bicycling – could be beneficial. As shown by Sallis, et al, utilitarian exercise is impacted by environment (proximity and quality), further supporting the argument that the built environment and street networks have an impact on public health. This is especially significant in developing a case for healthy networks within cities. Physical activity has also been shown to improve quality of life and well-being. In 1997, a group of researchers from Harvard Medical School found that physical activity in older adults had positive results comparable to medications.¹³ Controlled studies introduce a correlation between the built environment and health. Without the metrics provided by a variety of studies, it could not be argued above a speculative level that environment and public health are linked.

11 Frank, et al, 60.

12 Frank, et al, 39.

13 Frank, et al, 47.

Chapter 2: Street Networks and Connection

Networks and Connections

The importance of streets cannot be understated when discussing connectivity. Streets are the connective tissue of the public realm, and play a tremendous role in how people move about in cities. Urban spaces with access to good streets tend to be active, safe and well-used. Baltimore has a high demand for improved street networks and access to safe public space. This demand resulted in the Baltimore Green Network Plan Vision (*Appendix A*), released in May 2017. The plan has identified locations for a network of parks, but few of these spaces have been developed. The plan is diagrammatic, and has potential for producing a healthy network of spaces and streets for the city. Healthy networks require streets that are safe for bicyclists and pedestrians, and cater to people of all ages and abilities. Streets should not simply be *safe*, they should also function as connectors, uniting people with each other, and with the important public spaces in the city. Thus, healthy networks must include two factors: there must be good public spaces to connect (nodes), and good connections between those places (corridors).

This chapter looks closely at streets (corridors). It examines the many ways in which they are designed, defines different approaches through the lens of various design experts, and illustrates benefits and drawbacks of different strategies.

Street Types

There are many ways to categorize streets: by size, function, uses, etc. Streets may be primary, secondary or tertiary. These distinctions relate directly to the perceived hierarchy of the street. The designations of primary, secondary and tertiary may result from the width of the street, the amount of traffic, the speed of the traffic, the length of

the street, the directness between places, the length of blocks, etc. Primary streets are often the widest, busiest, fastest, longest, and straightest. Secondary streets are slower, but often have high volumes of traffic and are well connected. Tertiary streets are generally quiet, residential streets with limited traffic, almost exclusively local.¹⁴

Another way to categorize a street is by function and type. Streets may be busy commercial streets, quiet residential streets, or have a combination of these functions. They may be boulevards, avenues, main streets, alleys, and woonerfs. Most cities have a mix of these types of streets, which helps to distinguish the character of neighborhoods.

By Alan Jacobs definition, “boulevard streets evoke images of size and formality, with an emphasis on size and grandeur.” These streets generally have a park-like landscape space in the median of the street, which can vary in size and function.¹⁵

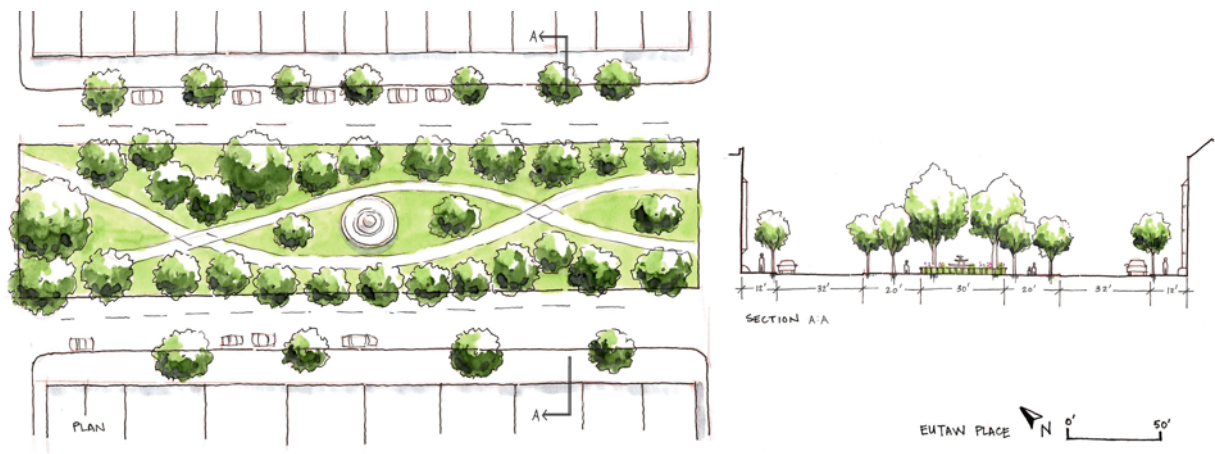


Figure 2 Example of a boulevard type in Baltimore City.

Eutaw Place offers a classic example for the park-like landscape in the median of the street.

Avenues are defined by Merriam Webster as “broad passageways bordered by

14 Clarence Perry. 1929. Wayne Darlington Heydecker, E. P Goodrich, Shelby M Harrison, Thomas Adams, Edward M Bassett, and Robert Harvey Whitten. *Neighborhood and Community Planning*. Regional Plan of New York and Its Environs, V. 7.

15 Allen B. Jacobs. 1993. *Great Streets*, 35.

trees.”¹⁶ Avenues are similar to boulevards, but some do not have median space (as boulevards almost always do). Additionally, avenues can be one-sided or two-sided; one-sided streets often open up to a large park or body of water, while two-sided streets have buildings on both sides.

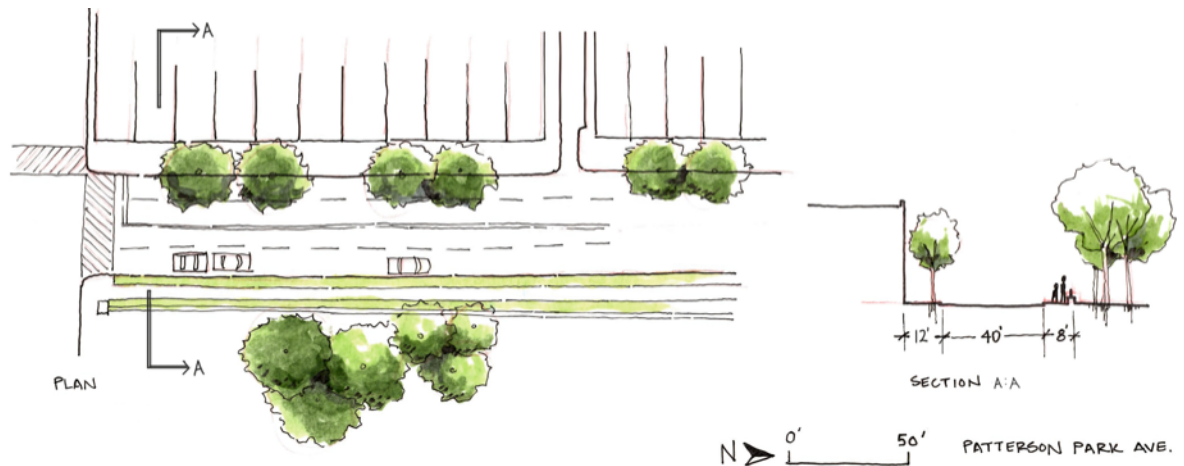


Figure 3 Example of an avenue type in Baltimore City.

Patterson Park Avenue is an example of the one-sided type, with row houses, shops and small apartment buildings along the west edge of the street, and the park to the east, affording expansive views of the green landscape.

Main streets can be found in cities and in small towns. A main street in a small town often runs the length of the commercial district (sometimes the length of the town); main streets in a larger urban area generally serve a neighborhood’s commercial needs, incorporating a mix of shops, small offices, and churches. Jacobs notes that there is a sense of neighborliness about these streets, and people often stroll or sit on benches.¹⁷

¹⁶ Merriam-Webster’s Collegiate Dictionary. 11th ed. Springfield, MA: Merriam-Webster, 2003.

¹⁷ Allen B. Jacobs, 166.

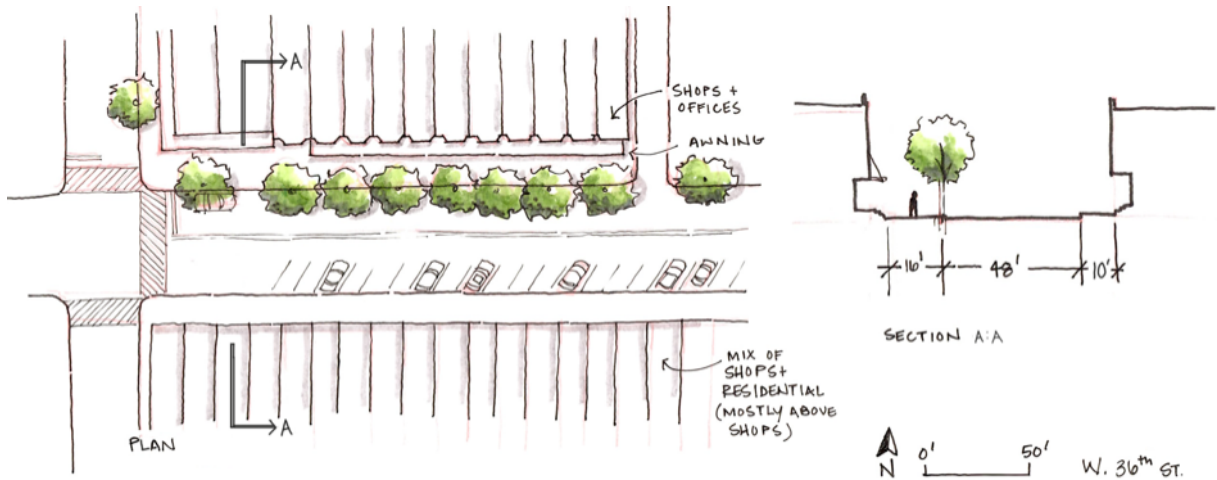


Figure 4 Example of a main street type in Baltimore City. West 36th Street, also known as “The Avenue” offers a small town main street feel to the neighborhood of Hampden in North Baltimore.

Alleys can be defined in many ways. Traditionally, alleys were defined as a narrow walk bordered by trees, but in the United States (and many other places) the narrow streets that give access to the rear of the buildings, usually in the middle of a block, may also be regarded as alleys.¹⁸

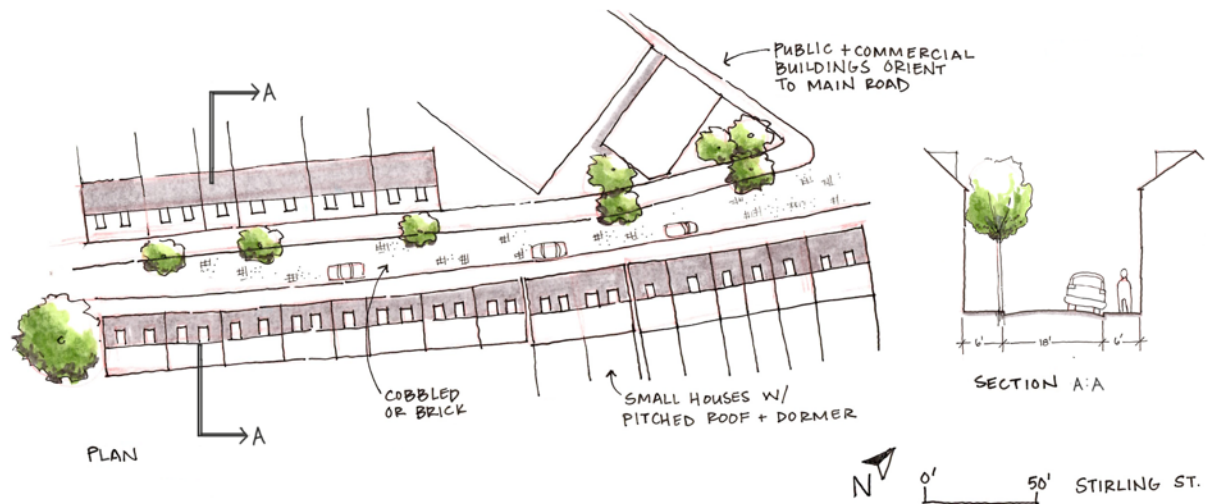


Figure 5 Example of an alley type in Baltimore City. Stirling Street near the Old Town Mall area of Baltimore is a good example of the alley-type street. Many older cities in the United States have these smaller scale streets – this one is similar to several other streets

¹⁸ Merriam-Webster’s Collegiate Dictionary. 11th ed. Springfield, MA: Merriam-Webster, 2003.

in Baltimore and some in Boston.

The woonerf concept is defined more by theory than the physical space, although certain physical attributes lend themselves to the notion of a woonerf. A woonerf is a social space where pedestrians, bicyclists and motorists share space. The physical attributes could be cobbles that help to slow cars, narrow streets and sidewalks that bleed into the street to invite pedestrians.¹⁹ The woonerf concept has been a longstanding feature of medieval city centers, but the concept has gained popularity in the United States as more people move back into cities.

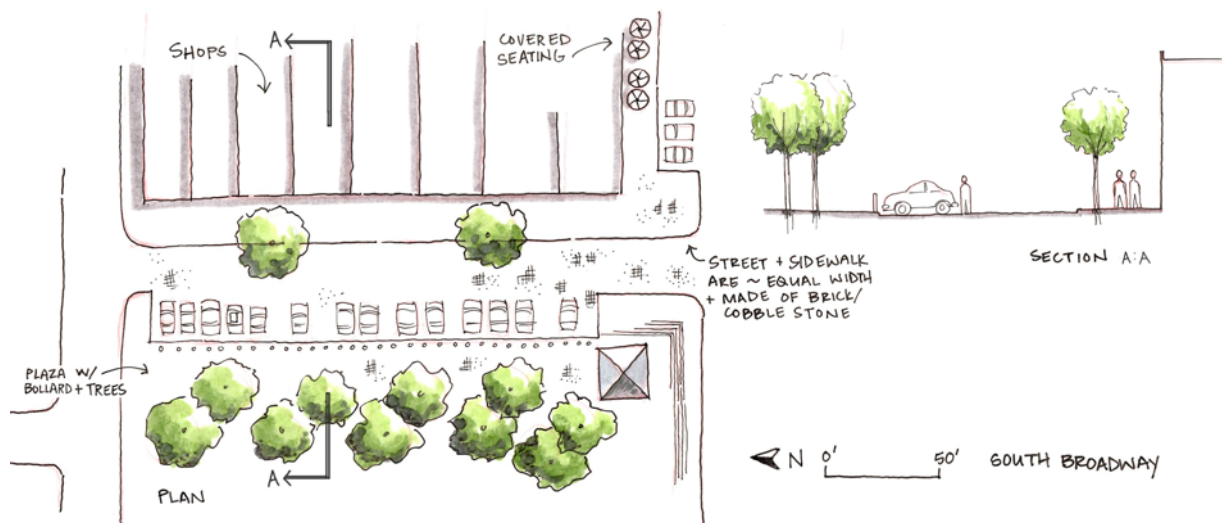


Figure 6 Example of a woonerf type in Baltimore City. South Broadway near the harbor becomes much like a woonerf. Cars and pedestrians co-exist on cobbled streets.

Approaches to Street Design

There are many different approaches for assessing whether or not a street is a good contributor to the overall network. Using an observational, metric-driven approach is one way to assess the effectiveness of a street, while a theoretical-prescriptive approach is a

¹⁹ Natalia Collarte

different strategy. The observational, metric-driven approach is favored for this thesis. Jan Gehl is a leading researcher using the observational metric-driving approach. This approach is based in empathy and focused on user experience. Data is gathered through observational methods and uses empirical data to develop correlation between metrics and behavior. The theoretical, prescriptive method employs an emphasis on the formal.

From Gehl's perspective, good network design begins with human mobility and human senses. The linear, frontal, horizontally oriented, upright nature of human biology is directly related to path and street, designed for linear mobility. Perception depends on distance; a person can often hear something before being able to fully perceive it visually. In urban design, this results in the social cone of vision, limited to approximately 100 meters or 300 feet.



Figure 7 Street section sketches by author, Stockholm, Sweden.
The street sections show a consistent proportion of building height to street width.

According to Gehl, the most essential elements for healthy networks are *the movement space* (street or corridor) and *the experience space* (public staying space or node). Design can impact the speed at which one moves through a space. Higher speeds require less complex visual information than lower speeds, and sensory experiences are heightened at slower paces. Thus, cobbled streets and buildings with fewer than five stories encourage slower speeds. Proportion is also important to creating the perception

of a staying space. In many old cities, taller buildings line wider streets, and buildings with only two or three stories on more narrow streets resulting in similar proportions.

Space is essential to street networks. Gehl's research examines both the amount of space required (that is was is the minimum space sufficient for movement of pedestrians), as well as quality of those spaces. These two factors – amount and quality of space – can encourage and enhance social behavior. Gehl writes, “the lively city and the lifeless city also send completely different signals. Architectural perspective drawings, which always show groups of happy people between buildings regardless of the actual qualities of the projects depicted, also tell us that life in public places is a key urban attraction.”²⁰ The *quality* of the street network space matters as much as the *quantity*. The lively city is a relative concept – too much liveliness can be exhausting or result in overcrowding.

Cities need a combination of good inviting spaces (nodes) and a certain critical mass of people who want to use them. In a system of healthy networks, this does not immediately necessitate high density. Gehl points out that “city life does not happen by itself or develop automatically simply in response to high density.”²¹ One way to draw people and enliven the street is to activate frontages along street networks.

While the number of users in a network is important, the amount of time the users spend in public spaces is also a significant factor. Lower floors of buildings contribute a great deal to street networks. They have a decisive influence on time, and can entice people to linger, sit, and people-watch. These activities can contribute to safety – the Crime Prevention Through Environmental Design (CPTED) strategy suggests informal

20 Jan Gehl, 2010. *Cities for people*. Washington, DC: Island Press. 63.

21 Gehl, 69.

surveillance (also referred to as “eyes on the street”) as a motivator for people to use space, as they feel safer when they can “easily see and be seen.”²² Street and neighborhood edges, too, make vital contributions to spatial experience; they are staying zones and offer an opportunity for exchanges. Ralph Erskine believed that if spaces are “interesting and exciting at eye level, the whole area will be interesting.”²³

It can be inferred then that Gehl might include the following criteria on a rubric for healthy networks: 1.) A clear hierarchy of spaces and buildings; 2.) Streets that are direct and link public staying spaces together; 3.) Routes between destinations that are logical and intuitive; 4.) Dimensions of spaces are modest and 5.) Streets and uses are compact.

Street Precedent

Connector streets unite places (nodes) and are essential to healthy networks; they invite the coexistence of vehicular, bicycle and pedestrian traffic. They offer opportunities to pause, destinations that are desirable for both neighborhood residents and visitors. For the purpose of better defining healthy networks, this thesis identifies examples of good connector streets with similar urban contexts. The precedent streets are not the Champs-Élysées; they are good primary streets in mixed-use neighborhoods in cities of about the same population as Baltimore. Hennepin Ave. in Minneapolis, Minnesota (Wedge neighborhood) and Tremont St. in Boston, Massachusetts (Back Bay neighborhood) were selected as precedent streets, because each functions in much the same way as North Avenue does – as arterial streets. A second reason for selection is the park system in each city, which offer an alternate route for pedestrians and bicyclists.

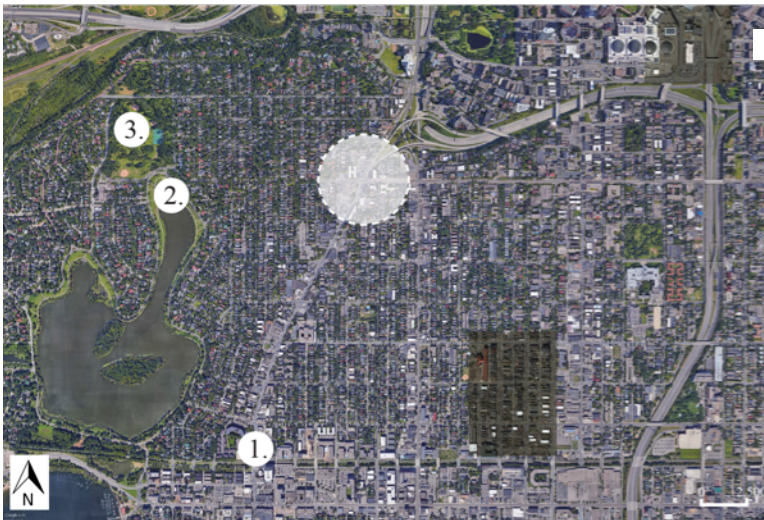
22 Gardner, Robert A. 1995. “Crime Prevention Through Environmental Design.

23 Gehl, 82.



Tremont Street

1. Popular shopping area: .50 mi
2. Water: .85 mi
3. Park: .50 mi
4. Metro: .50 mi



Hennepin Ave.

1. Popular shopping area: .1.2 mi
2. Water: .70 mi
3. Park: .70 mi
4. Metro: 3.5 mi (not shown)



North Avenue

1. Popular shopping area: .95 mi
2. Water: .55 mi
3. Park: .50 mi
4. Metro: .40 mi



Tremont Street

1. Courtyard apartments
2. Small residential (row houses)
3. Small commercial
4. Large commercial



Hennepin Ave.

1. Courtyard apartments
2. Small residential (single-family)
3. Small commercial
4. Large commercial



North Avenue

1. Courtyard apartments
2. Small residential (row houses)
3. Small commercial
4. Large commercial



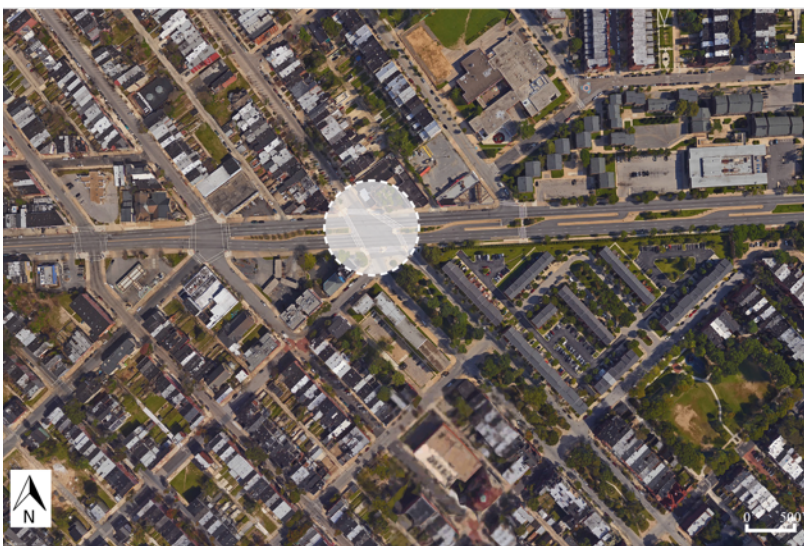
Tremont Street

1. *Street width: 70'*
2. *Block length: 260'*
3. *Number of stories at street edge: 4*
4. *Distance from building face to building face: 110'*



Hennepin Ave.

1. *Street width: 70'*
2. *Block length: 300'*
3. *Number of stories at street edge: 3-4*
4. *Distance from building face to building face: 95'*



North Avenue

1. *Street width: 120'*
2. *Block length: 200' – 800'*
3. *Number of stories at street edge: 2*
4. *Building face to building face: 200'*



Figure 8 Figure Ground, Boston, MA.

The figure ground shows the blocks are of irregular size and shape, however buildings orient themselves to the street. The hooked, diagonal of Tremont Street does not complicate the grid further, its buildings also orient themselves to the street or provide a plaza space in front to help regularize the frontage.

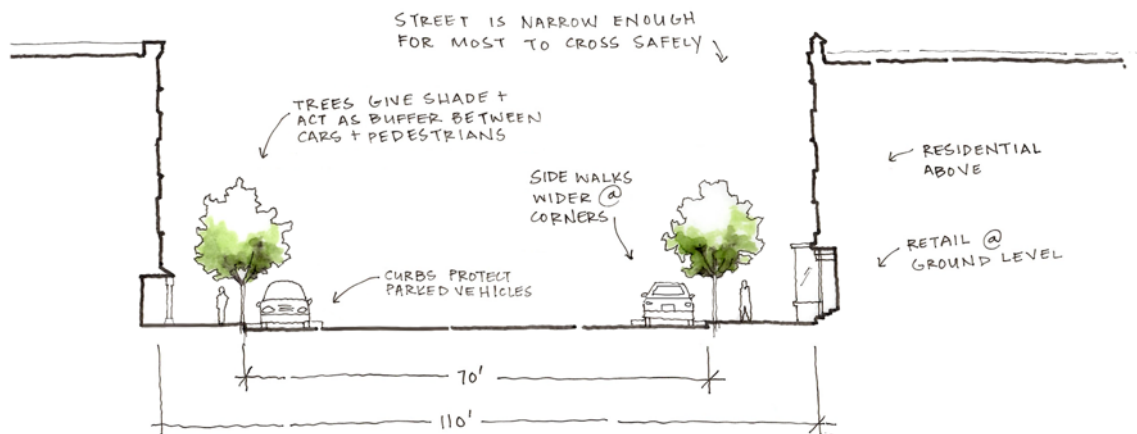


Figure 9 Section, Tremont Street, Boston, MA

Building heights are approximately 30% - 40% of street width. Trees and awnings offer shade and visual interest. Trees are located at the outer edges of the wide sidewalks and help buffer pedestrians from autos.



Figure 10 Figure Ground, Minneapolis, MN.

The figure ground shows the blocks are of a regular size and shape. Hennepin Avenue runs diagonally through this regular grid system, creating an exception to the rule, however the buildings orient themselves to the street or provide a plaza space in front to help regularize the street-front.



Figure 11 Section, Hennepin Avenue, Minneapolis, MN

Building heights are approximately 40% - 50% of street width. Trees and awnings offer shade and visual interest. Trees are located at the outer edges of the wide sidewalks and help buffer pedestrians from autos.



Figure 12 Figure Ground, Baltimore, MD.

The figure ground shows the blocks are of irregular size and shape. The buildings along North Avenue do not orient themselves to the street or provide a plaza space in front to help regularize the frontage.



Figure 13 Section, North Avenue, Baltimore, MD

Building heights are approximately 15% - 20% of street width. Trees are located at the inner edges of the narrow sidewalks, pushing pedestrians toward high-speed automobile traffic.

Chapter 3: Site Context

Broad Evaluation of the Area

This section uses a broad scope to evaluate and identify a site for further development. North Avenue in Baltimore city has been selected for its rich history and specific challenges, which will be explained further in this chapter. The theories of Kevin Lynch are utilized to evaluate potential and to narrow the scope from a large urban context to a specific site. Lynch denotes five types of elements that define the physical form of the city: *path, edge, district, node, and landmark*.²⁴



Figure 14: Neighborhood Boundaries

Neighborhood boundaries recognized by Baltimore City lack physical distinction and bleed together, diminishing a clear sense of place.

Evaluation begins at the neighborhood scale, also referred to as *district*. Baltimore City recognizes over 250 neighborhoods. North Avenue divides many of these

²⁴ Kevin Lynch. *The Image of the City*. Publications of the Joint Center for Urban Studies. Cambridge, Mass, 1960.

neighborhoods, but other edges lack distinction and neighborhoods blend together. North Avenue is perceived as boundary largely because it is a wide arterial street with speeding vehicular traffic. Instead of the arbitrary mapped edges, the perceived boundaries are topographical features of the Jones Falls to the east and Druid Park Reservoir to the north, and the arterial roadways of North Avenue to the south and Pennsylvania Avenue to the west. When mapped with these features as the edges of the neighborhood, the resulting districts are much more regular in size and may relate better to one another.

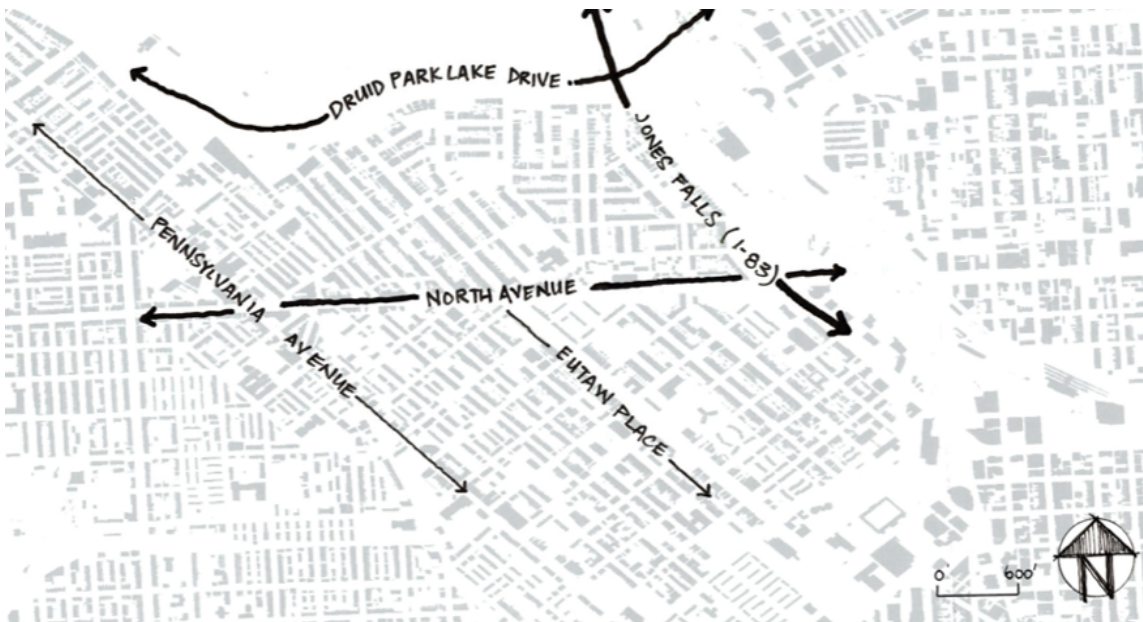
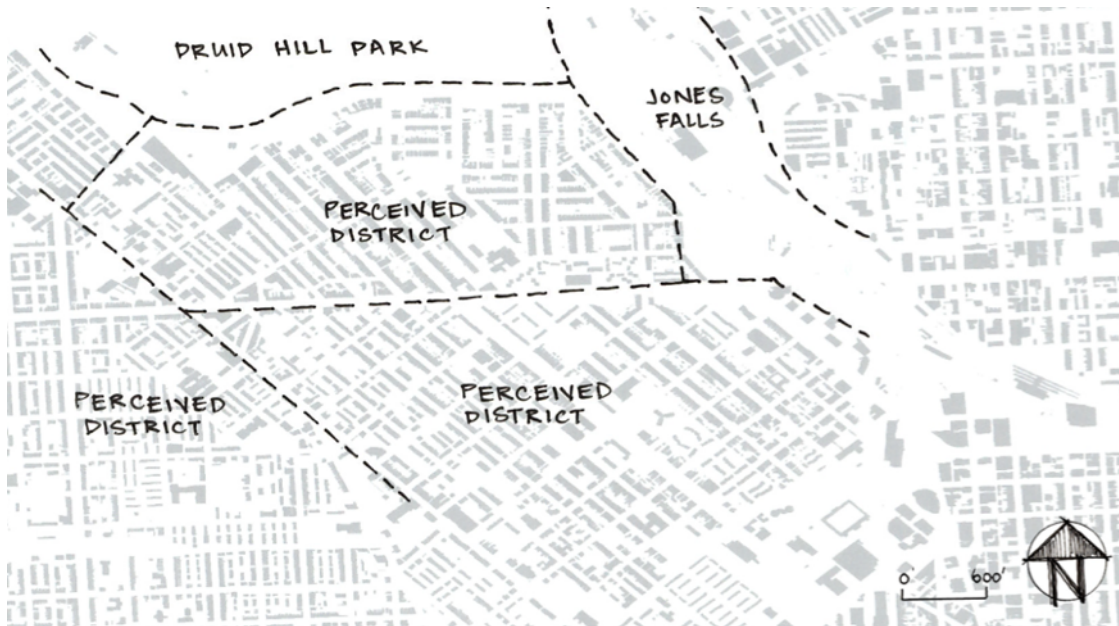


Figure 15: Boundary edges as perceived by author. These boundaries indicate how neighborhood edges are understood from the perspective of those who may otherwise be unfamiliar with the neighborhood boundaries.

Amenities, such as parks or community buildings, may be added at the centers of these districts. Street improvements between these amenities have the capability to develop a linked network and to unite neighborhoods otherwise separated by major infrastructural (the JFX) and topographic (the Jones Falls) obstacles. This strategy is identified and used in the recently published Baltimore Green Network plan. The plan

refers to spaces in the public realm as “nodes” and the streets that link them as “corridors” – those terms will be used to support concepts introduced in this thesis.



*Figure 16: Neighborhood districts as perceived by author.
This diagram shows how the dividers contribute to a district's sense of edge, reinforcing the area as a cohesive whole.*

Next, the urban context is evaluated for *path*. North Avenue poses a serious challenge; it acts as a major arterial street for vehicular traffic and as a barrier for pedestrians. At the east and west ends, North Avenue has a strong feeling of interconnectedness; however, the grid dissolves for nearly a mile between Pennsylvania Ave. and Howard St., leaving a confused sense of place. Additionally, the pedestrian pathways have underlying directionality, due to the shifted grid. Streets do not run orthogonally north to south, but northeast to southwest, and northwest to southeast. Thus, if a pedestrian wants to walk south, they must make a decision between walking south and west or south and east.

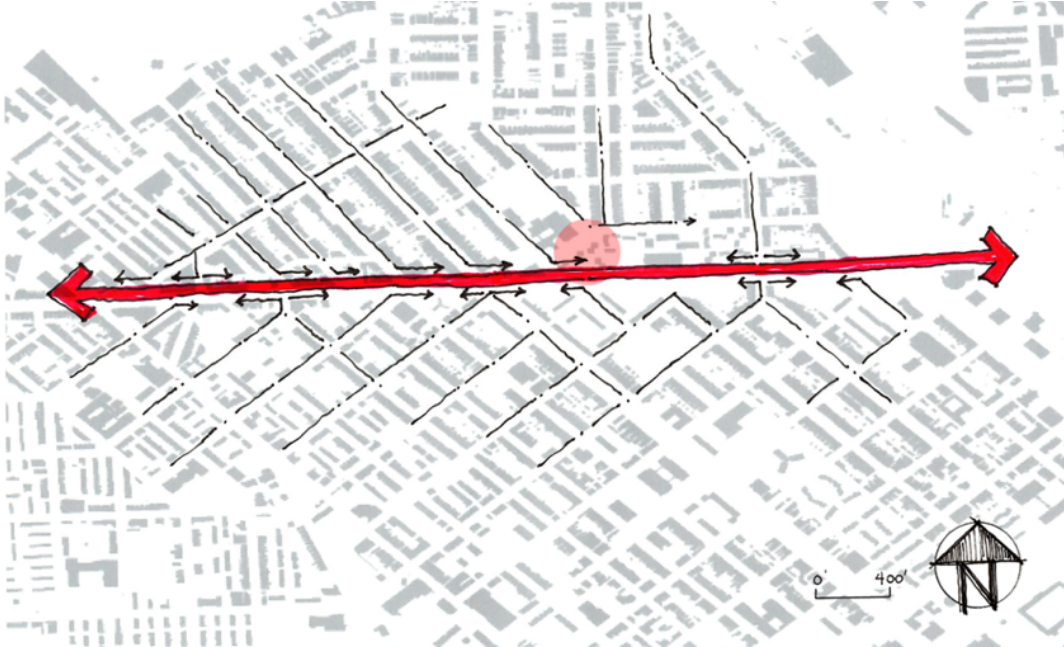


Figure 17: Path and Direction

This diagram uses the directional quality of the streets to determine the natural flow of pedestrian traffic.

Evaluation of *edge* along North Avenue reveals the fragmented quality of the street. Edge refers to the vertical surface that helps to give space an enclosed feeling – this includes building face, rows of trees, etc.

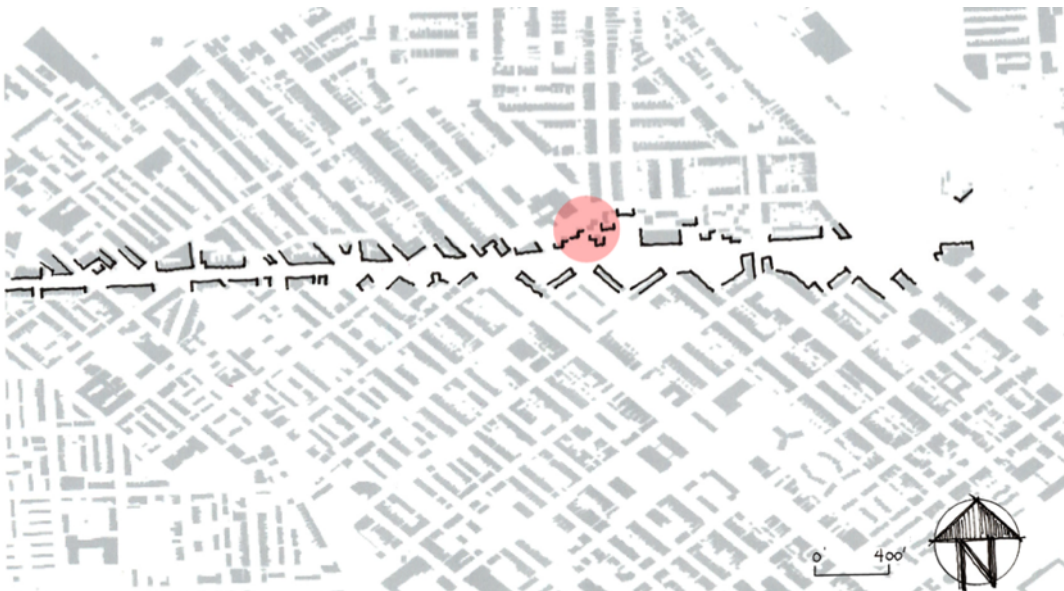


Figure 18: Edge, Space Negative

Street edge lacks definition; buildings read as objects and the space read as void.

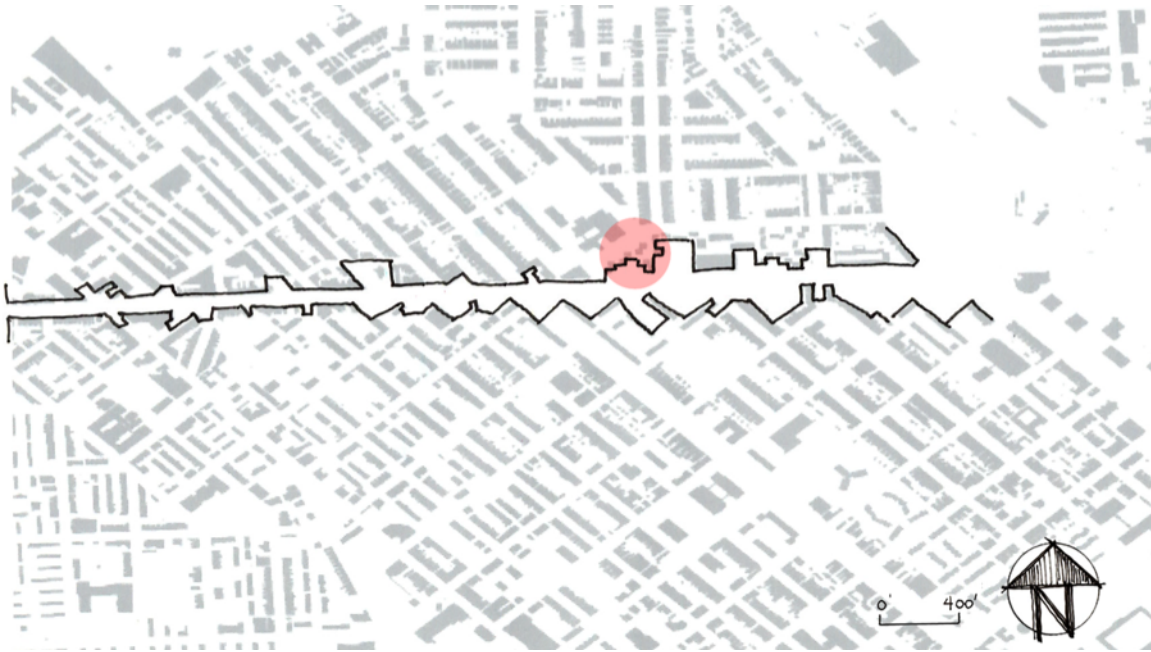


Figure 19: Edge, Space Positive
Street edge lacks definition; space read as objects and the buildings read as void.

The edge is important for developing discernable space; good public staying spaces (nodes) often feel like outdoor rooms. These spaces have clear and comfortable proportions, they have defined edges, and hierarchy. Undefined edges give way to ambiguity, which can result in a host of problems including collecting litter and inviting illegal and illicit uses. Edges can be defined in terms of space-positive or space-negative. Space-positive evaluation allows for an assessment of the whole contiguous space, which space negative assesses fragmented space and can examine relationships between individual buildings. Both are effective for understanding challenges at the urban scale.

Lynch defines *nodes* as “primary junctions, as a crossing or convergence of path.”²⁵ For the purpose of this evaluation, *nodes* are considered obvious places to cross

²⁵ Lynch, 99.

North Avenue. That is, they have crosswalks, stoplights, and feel safe enough for pedestrians to cross regardless of age or physical ability. In addition, the nodes should have some desirable use on either side of the street, to encourage crossing.

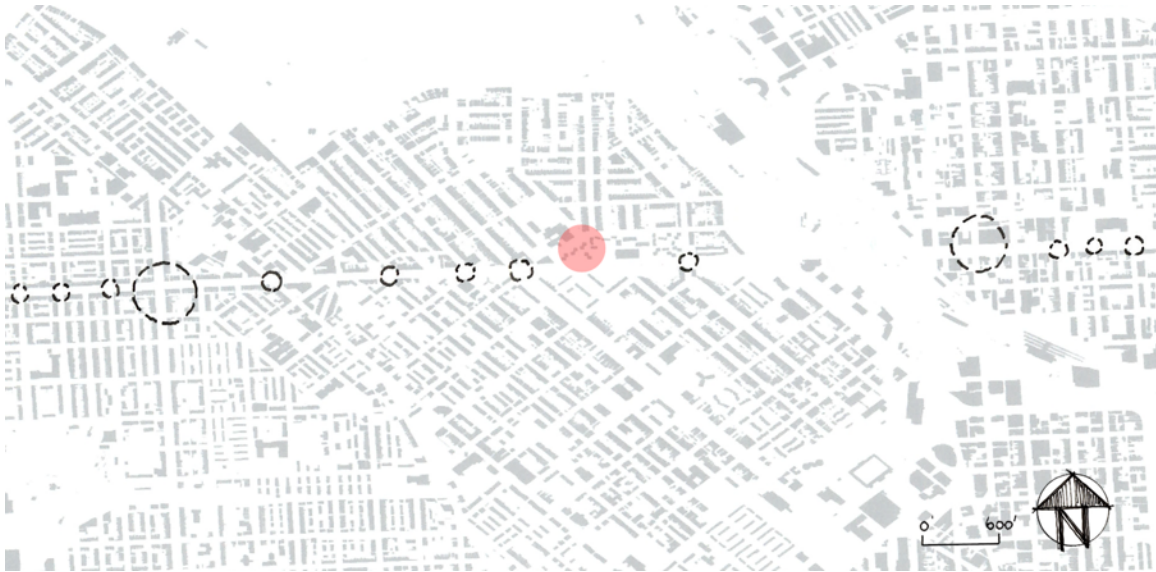


Figure 20: Nodes

Nodes outside immediate context of the site are regular and evenly spaced; nodes near site are irregularly spaced, discouraging pedestrians from crossing North Avenue.

Finally, the site context is evaluated for *landmarks*. There are several landmarks along North Avenue, but a majority of them lie on south side of the street. Incidentally, census tract data reveals that from Reservoir Hill (north of North Avenue) to Bolton Hill (south of North Avenue), median income and home prices rise sharply, as does the racial diversity (*Appendix B*).

An important distinction about Lynch's definition of *landmarks* is that they do not have to be architecturally significant – in his definition, a recognizable billboard is equal to a recognizable gothic cathedral; what matters is that they are both *recognizable*. This

thesis offers a differing opinion: landmarks should be attractive and of architectural significance. For that reason, the metro subway station at the intersection of North and Pennsylvania Avenues has not been included in the landmarks diagram.



Figure 21: Landmarks

The landmarks near the site are located on the south side of the street, discouraging pedestrian need to cross North Avenue and reinforcing the notion of division.

Strategies for improvement emerge after thoroughly reviewing North Avenue and analyzing specific aspects of its drawbacks. Five urban design strategies for improving the conditions of North Avenue to encourage connectivity and pedestrian activity develop from the above analysis: 1.) Address the ends; 2.) Strengthen connections; 3.) Activate the street; 4.) Improve Pennsylvania Avenue metro station; and finally, 5.) Address the North Avenue Bridge.

Chapter 4: Urban Design Strategies

In the previous chapter, several urban design strategies for improving the urban fabric along North Avenue were introduced. This chapter explores those ideas in more depth and speculates on potential solutions for connectedness of neighborhood residents. The options are evaluated as a portion of the overall healthy network; those options that would contribute most to the overall are favored for this thesis.

Option 1: Address the Ends



At the edges of the site context along North Avenue are two transit centers, one at the intersection of North Avenue and Pennsylvania Ave. to the west and one at Charles Street and E. Lanvale St. to the southeast. Connection to larger transportation networks resident access to opportunities outside their neighborhoods, and can prompt activity by drawing users from outside the immediate neighborhood. Benefits of increased accessibility to mass transit include improved opportunity, reduced vehicular traffic, fewer traffic-related injuries, reduced emissions from motor vehicles, and increased physical activity.

One drawback to this approach is the long distance between the two stations (more than a mile). Even if the two destinations were greatly improved, the long distance along North Avenue, with its speeding autos and fractured space, poses a major deterrent for pedestrians. Another drawback is visibility; the distance between stations prevents users from making a visible connection between the two stations. Even as landmarks, they

would be disassociated from one another, and fail to act as a logical network.

Option 2: Strengthen Connection Across



Improving connectedness allows access to neighborhood amenities, while increasing the safety of residents. Benefits of improving connectedness across North Avenue include increased access and movement within the neighborhood, increased walking, and increased opportunity for social engagement. This is a strong strategy for creating a healthy network, and also one of the easiest strategies to implement – it can be accomplished with improved crosswalks and traffic signals. This approach alone will not cure North Avenue of its challenges, but it can be used in conjunction with other strategies to improve the whole of the streetscape.



Figure 22 Improved Connection Across North Avenue
Adding new smaller secondary streets and a variation of paving with different texture helps the street to feel like an extension of the sidewalk, giving ownership of intersections to pedestrians.

Option 3: Activate the Street



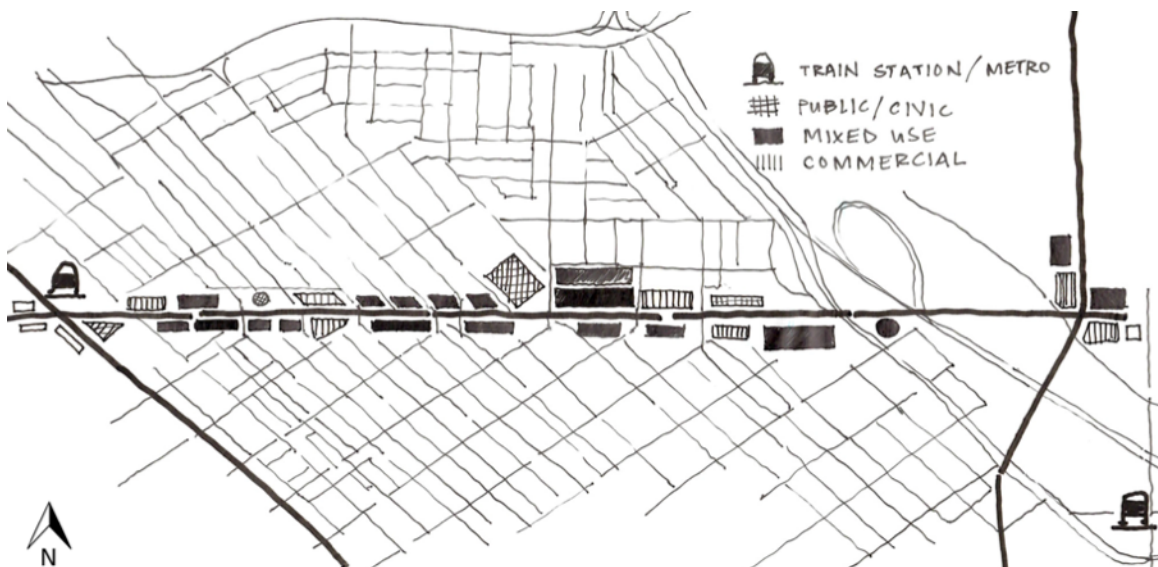
Activation of the street encourages uses beyond those that are purely utilitarian, and in doing so can enliven the street life. Benefits of adding activities (a park or feature) are not limited to improving the health and wellness of residents, but may also increase number of visits from residents outside the immediate neighborhood and act as a destination. These spaces also contribute to the strength of networks by acting as nodes, preferred pedestrian corridors, and sometimes both. Examples of this type of intervention can be found in Superkilen Park (Copenhagen, Denmark) or the Embarcadero (San Francisco, CA). Both of these interventions are extreme cases; in the case of the Embarcadero, a former highway was repurposed to become a pedestrian parkway.²⁶



Figure 23 Precedent for activating the street. Superkilen Park in Copenhagen, Denmark is an example of how streets can be reconfigured for pedestrian use, and activated to promote interest. Photograph by author.

²⁶ National Trust for Historic Preservation. *11 Most Endangered Spaces*. 2017.

A major benefit of converting infrastructure automobile-only to pedestrian and cyclist- only the effectiveness (if designed and implemented properly) to draw users and encourage activity. The drawbacks of such extreme interventions are the financial investment needed, and the loss of vehicular traffic. It can be difficult to raise enough capital and public support for such a project. North Avenue is an important east-west arterial street, and the vehicular traffic will need to be addressed if it is pushed from North Avenue in favor of pedestrians.



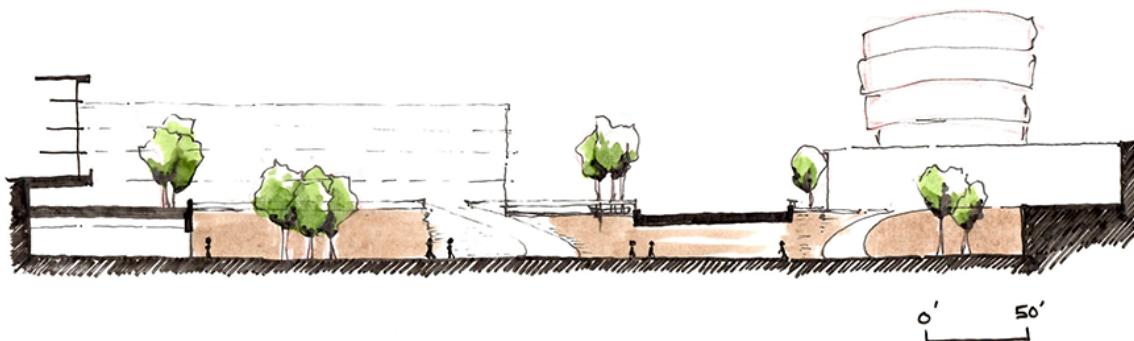
*Figure 24 Additional program disbursed along North Avenue.
Adding pedestrian friendly program can prompt users to cross the street.*

Another way to activate the street is by adding features that attract users and prompt them to cross from one side of the street to the other. This can be done with addition of cafés and shops, places to sit and watch, public art, plazas, etc. Additional program disbursed along North Avenue makes walking distances seem shorter. A series of public amenities woven in amongst the commercial buildings could promote walking by giving neighborhood residents places to which walking would be appropriate and

desirable. Some of these places exist within the neighborhood already, but they are too far apart and too infrequent, as the street is unpleasant for walking.

There is an existing library at Pennsylvania Avenue, across from the metro station. At the eastern edge lies the MIIIC/A campus, not far from Penn Station. Between these two highly functional, busy destinations lies a mix of low-density commercial (gas stations and corner stores) and residential buildings facing inward with their backs at North Avenue. An infusion of development could greatly improve this situation, but requires a major investment by private developers. To make the developments effective, there would also need to be a strong public-private partnership.

A more effective way to activate North Avenue may be to combine a number of strategies. That is, to add a linear plaza to border North Avenue, while narrowing the vehicular street is one way to address the issue. Pedestrian-friendly program could be added to border the newly widened plaza and to strengthen usage. To address the issue of crossing North Avenue, a new sunken level that allows pedestrians to cross freely back and forth could be created. This approach would layer several strategies together to enhance safety and encourage movement to and within the site, but there are drawbacks including maintenance and safety concerns.



*Figure 25 Section through North Avenue.
This section explores what a sunken plaza to encourage pedestrian crossing might look like.*



*Figure 26 Plan for activating North Avenue.
A new, more narrow vehicular street would be bordered by a pedestrian friendly green space, buildings, and a sunken plaza to encourage pedestrians to pass back and forth, securely away from traffic.*

Option 4: Improve Metro Station



Currently, the metro station located at the intersection of Pennsylvania Avenue and North Avenue is problematic. It is invisible from an architectural standpoint and does not set itself apart as a landmark building, although it is located in a busy part of the neighborhood near two other landmark buildings, the Enoch Pratt Free Library and the Arch Social Club. Increased accessibility to downtown and out to western suburbs would give residents more options. Access to transportation has the potential to level the field for communities that lack specific resources.



Figure 27: A highly visible metro station
The Second Avenue Station in New York City (AECOM and Arup, 2017) acts as a highly transparent landmark.

An example of this highly visible, landmark type of subway station is the newly established 2nd Avenue Station in New York City (AECOM and Arup, 2017).²⁷ The visibility of the station makes it a landmark within the neighborhood, and announces that travelers have arrived. In CPTED strategies, knowing where you are in relation to other places (often accomplished with adequate signage and memorable, visible structures) makes people feel at ease²⁸ and can encourage users both within the community and invite visitors from outside the community.

Option5: Address North Avenue Bridge



An aerial photo of the North Avenue Bridge helps to describe the unique condition

²⁷ Diana Lind. "Civic Lesson: New Social Infrastructure." *Architectural Record*. Apr. 1, 2017. Accessed May 6, 2017. <http://www.architecturalrecord.com/articles/12484-civic-lesson-new-social-infrastructure>.

²⁸ Gardner, Robert A. 1995. "Crime Prevention Through Environmental Design.

of this challenging ¼ mile stretch of street. To the left of the image is the recognizable Howard Street Bridge, which crosses over I-83. North Avenue is perched above the Jones Falls and the rail yard, and then dips dramatically beneath the expressway at the far right of the image. Pedestrians experience high winds, excessive automobile speed, and noise.



Figure 28: Existing North Avenue Bridge

This quarter mile stretch of North Avenue is susceptible to high winds, vehicular traffic at rates of 40 miles per hour, little separation between pedestrians and vehicles, and no covered areas for protection against wind, precipitation, and sun. Used with permission from Google Earth

Manipulating the North Avenue Bridge to unite the east and west sides, encourage movement across and strengthen the network of amenities would require a major effort. There are three basic sub-strategies for addressing the bridge: 1.) Convert the bridge to a park; 2.) Convert the bridge to a market street; and 3.) Make the bridge a destination. Although converting the bridge to a park would be a major undertaking, the practice is becoming an increasingly common. Examples of this type of intervention can be found at

High Line Park in Manhattan, New York (James Corner Field Operations and Diller Scofidio, 2006-14)²⁹ or 11th Street Bridge Park in Washington, DC (proposed, OMA).³⁰

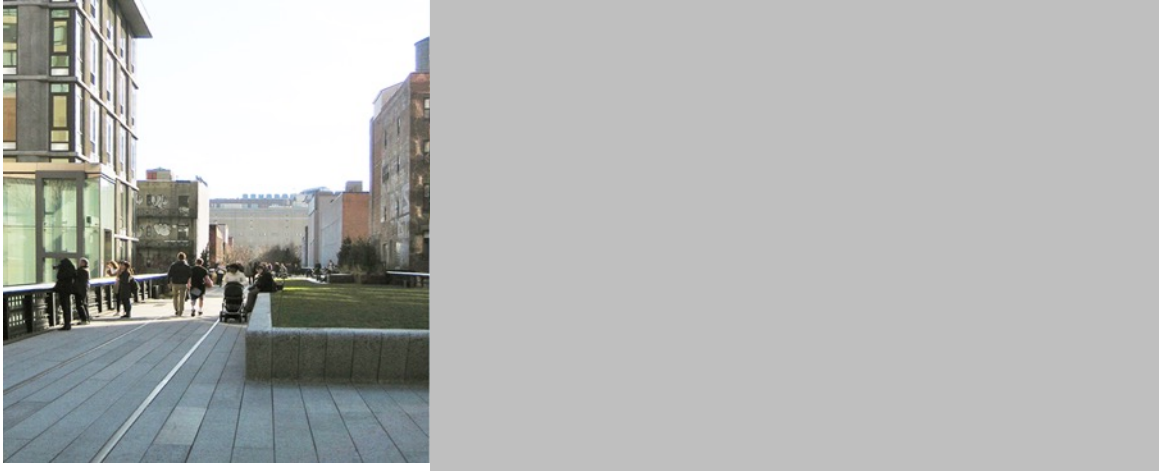


Figure 29: Precedent images for creating a bridge-park. The opportunities for creating a bridge park can be seen in these two precedent images. High Line Park in Manhattan, New York (James Corner Field Operations and Diller Scofidio, 2006-14) on the left offers a linear passageway for pedestrians above the vehicular traffic (photo by author, 2012). 11th Street Bridge Park in Washington, DC (proposed, OMA)

Converting the bridge to a market street would pose major challenges. In 16th century Paris, the Pont Neuf was lined with shops and residences.³¹ Parisians lived, worked and traded on the bridge; but there were no automobiles. North Avenue Bridge could be converted to a market street by adding buildings and utilizing the existing bridge infrastructure as a ground plane, but the strategy would require minimizing the number of lanes from six to four, or even two. This would likely pose issues for vehicular bottlenecking, but would invite pedestrian traffic to the bridge.

29 Anna Winston. "The High Line is a pulling back from architecture, say Diller and Scofidio." *DeZeen.com*: Nov. 3, 2014. Accessed May 8, 2017: <https://www.dezeen.com/2014/11/03/elizabeth-diller-ricardo-scofidio-interview-high-line-new-york>.

30 Lind.

31 Joan DeJean. *How Paris Became Paris: The Invention of the Modern City*. 21-44.

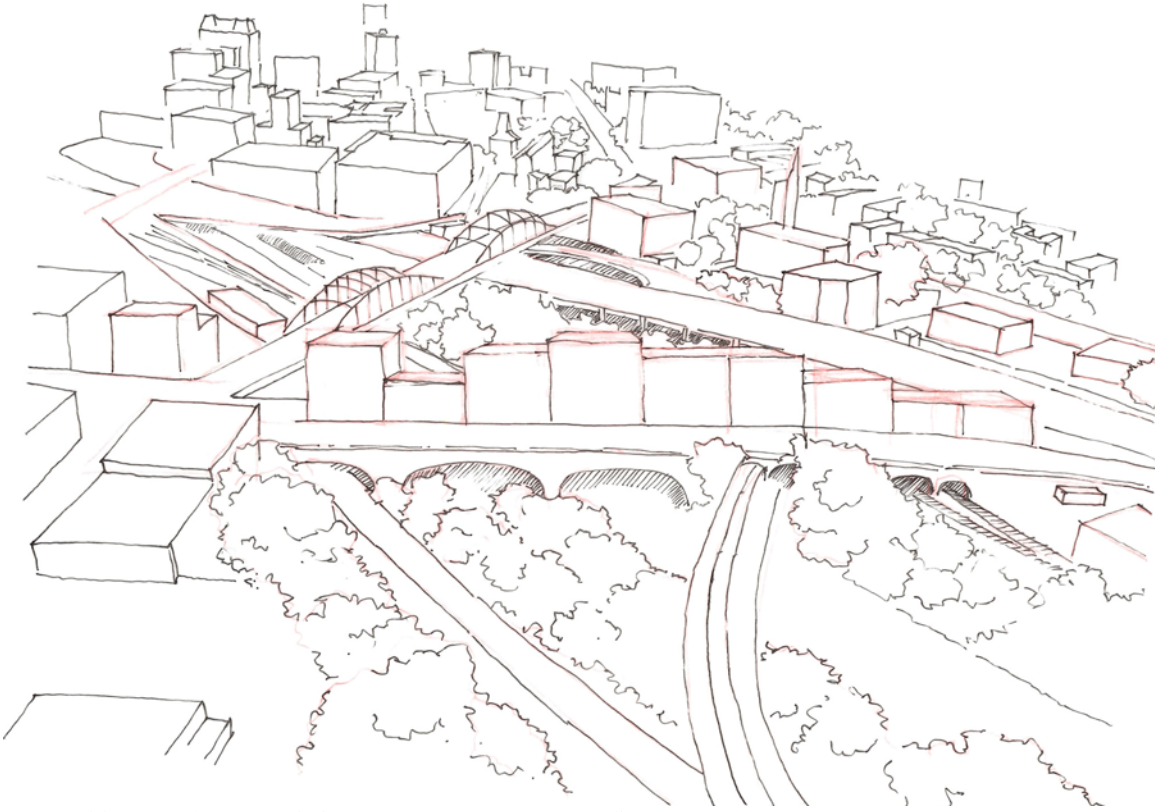
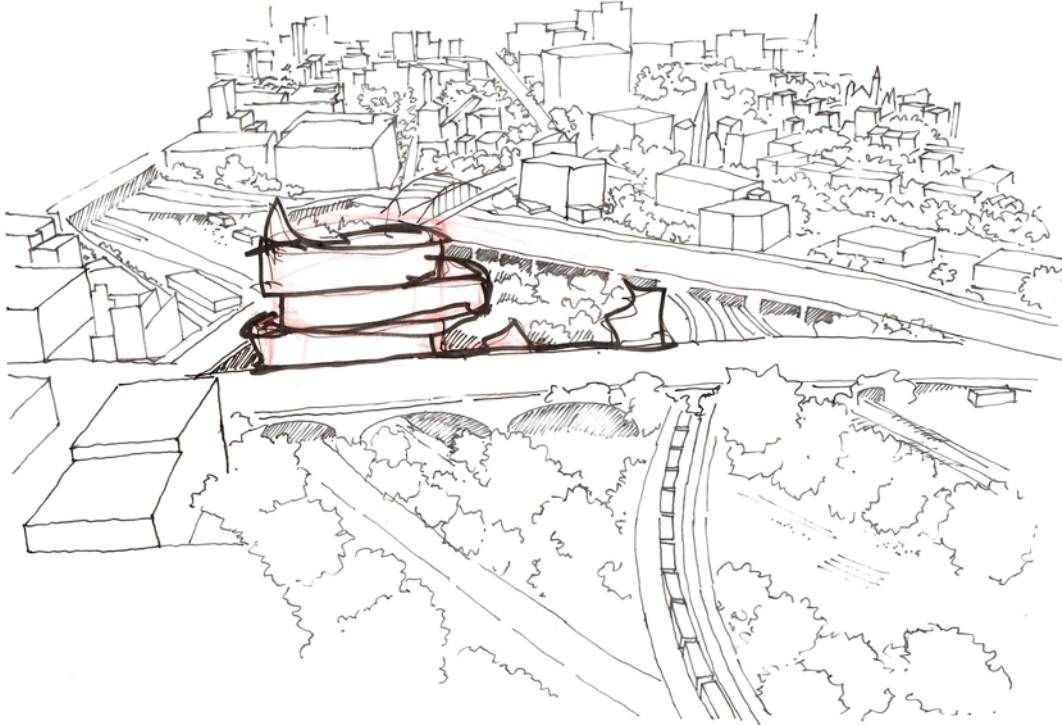


Figure 30: Transform North Avenue Bridge to a Market Street.
The opportunities for creating a market street are explored through a conceptual aerial sketch. This strategy would require reducing vehicular traffic, causing congestion.

The third option (making the bridge a destination) could be addressed by adding an object building to stand out from the urban fabric as a recognizable element. The building could mitigate the steep topography and provide a way to move pedestrians from North Avenue above, down to Jones Falls Trail (a major portion of the Baltimore Green Network Plan) below. This section of road is currently problematic – pedestrians have two choices for navigating the steep topography: take a 4-block detour similar to a freeway on-ramp, or descend nearly 3 flights of rickety wooden steps. If a building with a public function was added (perhaps with an entire deck devoted to bicycle parking to support the recently dedicated north-south bicycle lanes nearby), this solution could truly act as a work of social-civic infrastructure. This approach might be a sweeping sculptural

façade to mirror the Gateway dormitory at the west side of the bridge, and visually uniting the two sides, further strengthening the network.



*Figure 31: Add an object building to promote movement between elevations.
Adding a building that would help to move pedestrians up and down between the*

Hypothesizing extreme design solutions results in a range of options, each with benefits and drawbacks.

Chapter 5: Site Selection

Site Selection

The diagrammatic review of North Avenue revealed a potential site, east of the Jones Falls. The site was selected for further examination a number of reasons. First, North Avenue is an important corridor in the Baltimore Green Network Plan and this site is ideal for testing strategies for connectivity to green space and community. Secondly, the site is located at the intersection of three very distinct neighborhoods. The mix of existing physical constraints (proximity to a number of challenging streets, highways, train tracks, and steep topography), social background and ecological context make it a prime location for study.



Figure 32: Aerial View of Site
The intersections of North Avenue and Howard Street, above and Falls Road below. Used with permission from Google Earth

Context: Neighborhoods

The site is situated at the intersection of three distinct neighborhoods: Bolton Hill to the southwest, Reservoir Hill to the northwest, and Station North to the east. Each of these neighborhoods has their own character. Station North is industrial, with a large percentage of surface parking. Murals and graffiti add color and texture to the brick warehouse buildings, which are starting to be repurposed as shops, offices, and galleries. Bolton Hill is a collection of stately row houses and academic buildings. The neighborhood feels formal with its marble and glass buildings. Reservoir Hill is park-like, with smaller row houses lining green space.



Figure 33: Neighborhood Character

R – L: Diagram of words associated with each of the distinct neighborhoods surrounding the site; Graffiti Alley in Station North; Maryland Institute College of Art campus building in Bolton Hill. Photographs by author.

Site History: Neighborhood Development

Historically, North Avenue has posed an issue for neighborhood connectivity. The street was planned and implemented before the outermost edges of Baltimore were developed and was the northern border of the city at one time. The pattern of growth in the outlying areas followed the orientation of the Jones Falls. These areas were built up independently by industry - mills were prevalent and used the Falls as a power source,

each mill-settlement developed an urban fabric independent of the orthogonal inner-city fabric³².



Figure 34: Diagram of Grid Orientations

Mills used the Jones Falls to power their operations. The settlement grids were oriented on the direction of the falls, rather than the orthogonal grid of the inner city.

This diagonal grid pattern found its way into the city through organic growth and expansion, and remained largely benign. Complications occur mostly along intersections at North Avenue, where the geometry of the street grid becomes more complicated. North Avenue runs du east-west, while the smaller secondary and tertiary streets run diagonally from northwest to southeast. The configuration leaves odd-shaped blocks of various

32 Baltimore Heritage , 2017. <https://baltimoreheritage.org/history/cotton-duck-textile-manufacturing-growth-hampden-woodberry>

sizes, which are more difficult to organize than orthogonal blocks. As the city annexed land and continued to expand, North Avenue became a major vehicular traffic thoroughway for the city, which exacerbated the issue of north-south connectivity along long stretches of the street.

Baltimore's industry continued to grow, as did its population. In 1860 Druid Hill Park was established approximately half a mile north of North Avenue. The park is an important neighborhood amenity; besides its lush green romantic landscape, the park holds the man-made Druid Hill Reservoir, a number of streams, and other water features. In 1970s the north side of the park was fenced off, allowing for illicit activities to occur. Drug sales and prostitution plagued the park, but a revitalization effort has driven crime out and encouraged community to return to the park.



Figure 35: Maryland College Institute of Arts Campus
The school relocated to its current home in Bolton Hill after the Great Fire of 1904. Over the next century, the school added many buildings using current technology and materials.

The Maryland Institute College of Art (MICA) is also important to the context of the site. The school was established in another location, but lost its main building in the

Great Fire of 1904. In 1907, MIIIC/A moved to Mount Royal Ave. near North Avenue, where the main building still stands.³³ MIIIC/A is considered an anchor institution, and the expansion of the campus has impacted the look and feel of the neighborhood.

Like many cities, policy also shaped the city, its demographic makeup and its physical form. During the middle of the twentieth century, the Federal Housing Authority developed a practice called “redlining” which was applied to many neighborhoods, and affected the area along central North Avenue. The practice of redlining refers to the creation of segregation districts, generally occurring through lending practices, legal means, and deed restrictions³⁴. The result impacted development and demographic make-up of the area, and made the neighborhood susceptible to land seizure through eminent domain during the Interstate Highway era in the United States³⁵. This eminent domain allowed for the Jones Falls Expressway to bisect the city and many lower income neighborhoods. In Jane Jacob’s seminal work, *The Life and Death of Great American Cities*, she identifies the Eutaw Street promenade as an example of how cities’ once upper-class neighborhoods entered a period of economic decline due to poor planning practices and short-sighted decisions.³⁶ Residue of redlining is visible in current census tract information (*Appendix B*).

As the neighborhood continued to grow, the city identified a need for public housing. In the 1970s, 357 Senior apartments were added at the corner of Maryland

33 MIIIC/A (2017). https://www.mica.edu/About_MICA/Facts_and_History.html

34 Antero Pietila (2010). *Not in My Neighborhood : How Bigotry Shaped a Great American City*.

35 Ghel Institute (2017). <https://gehl.institute.org/news/health-equity-public-space/>

36 Jane Jacobs (1961). *The Death and Life of Great American Cities*. 114.

Avenue and West 20th Street. The J Van Story Branch apartments tower over the neighborhood, and house hundreds of seniors living on fixed incomes on its twenty-two floors.

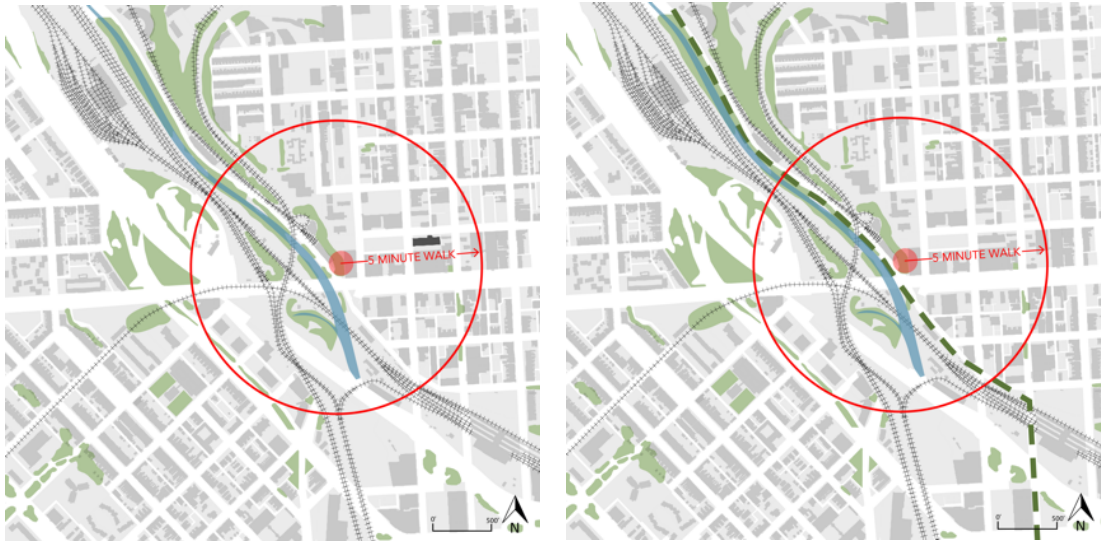


Figure 36: Location of Senior housing and Jones Falls Trail
Left: The J Van Story Branch Apartments house hundreds of seniors, and are located approximately one block from the selected site. Right: The newly improved Jones Falls Trail runs adjacent to the site.

A more recent history of the site includes a new master plan, and a revitalization effort of the Jones Falls Trail. In the fall of 2016, the Neighborhood Design Center (NDC) published a master plan for a stretch of North Avenue between Maryland Institute College of Art (MIIC/A) and Coppin State University³⁷ The Master Plan earned a TIGER grant in the amount of \$27 million for the improvement of the North Avenue streetscape. The plan deals with redesigning specific physical aspects of North Avenue, and introduces complete streets concepts, but does not delve deeply into development strategies beyond the street edge. The Jones Falls Trail effort runs adjacent to the site, but crosses under North Avenue. The separation is so distinct, due to the topographic drop,

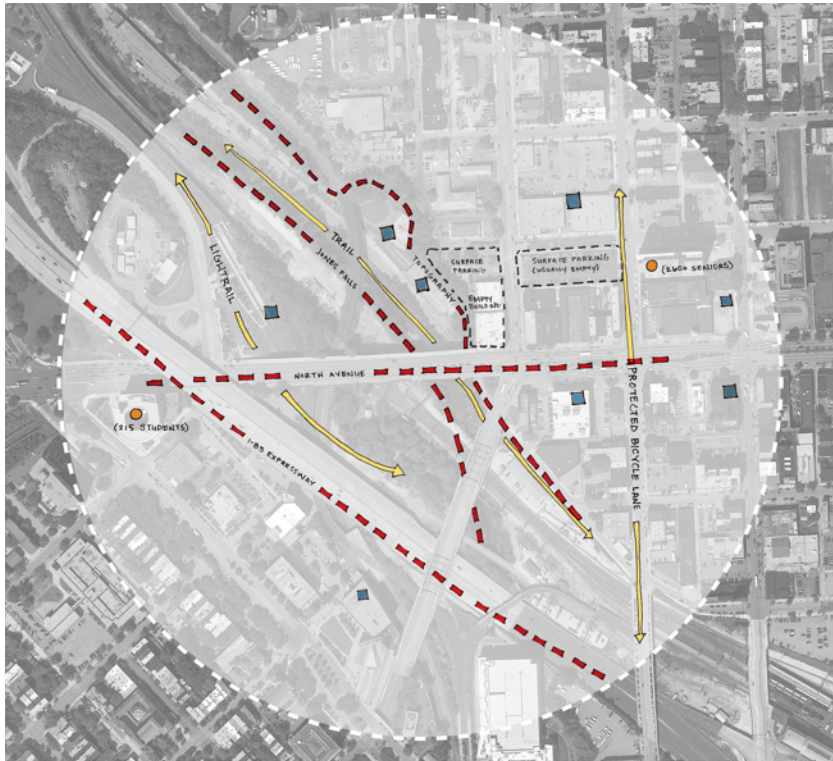
³⁷ Ndc-md-org. "West North Avenue Streetscape Conceptual Master Plan." The Neighborhood Design Center.

they are invisible to each other.

Site Analysis

Because of the complexity of the site, a majority of the time and effort on this thesis project was spent examining the site. Analysis of the site began with inventory of existing amenities, concentrations of population density, and access to larger transportation networks. This inventory revealed that there were two main concentrations of population: the MIIIC/A campus, and the senior housing. The existing amenities in the neighborhood were distributed more or less evenly around the site, and there were several larger transportation networks in the neighborhood, including bicycle lanes, bus routes, and a light rail stop.

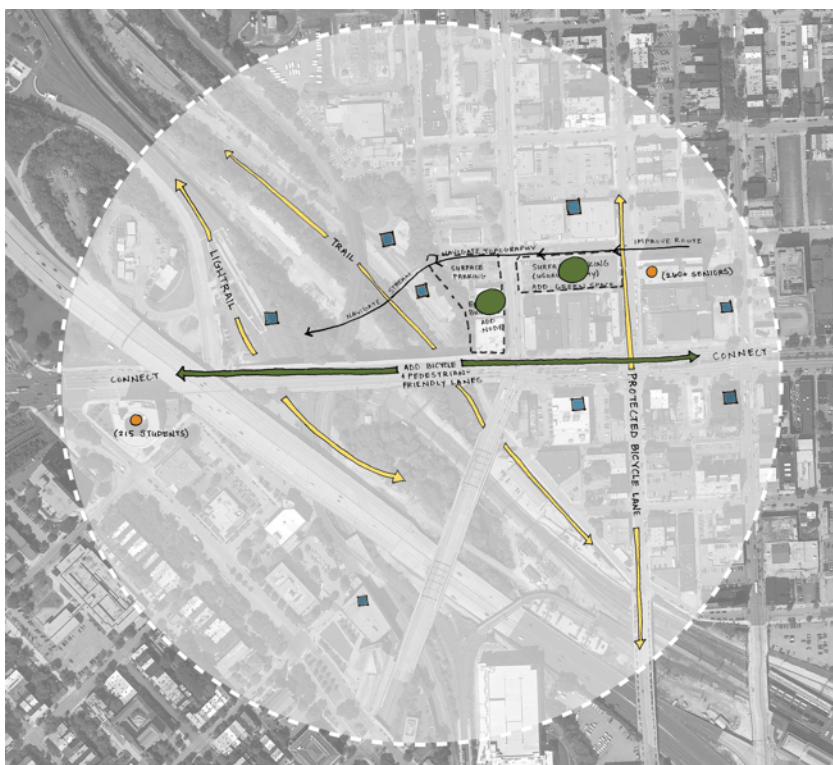
Amenities were mapped and overlaid with population concentrations, then perceived barriers were identified (see diagrams on next page). The barriers are the I-83 Expressway, the Jones Falls Stream, the steep topography, train tracks, and North Avenue, itself. North Avenue is considered a barrier, rather than a connector. The street is a connector for automobiles, but currently provides an unpleasant and relatively unsafe environment for pedestrians and cyclists. North Avenue also severs the north side of the community from the south side for long stretches, as shown in the context analysis. The six-lane arterial street can be difficult to cross for children and those with mobility challenges.



CONCENTRATIONS **NODES** **CORRIDORS** **BARRIERS**

Figure 37: Organizing Diagram with Barriers

Population concentrations, amenities, and access to larger transportation networks overlaid with perceived barriers to help identify potential areas of opportunity.



CONCENTRATIONS **NODES** **CORRIDORS** **SOLUTIONS**

Figure 38: Organizing Diagram with Design Solution Strategies

Population concentrations, amenities, and access to larger transportation networks overlaid with strategies for overcoming perceived barriers and connecting the neighborhood.

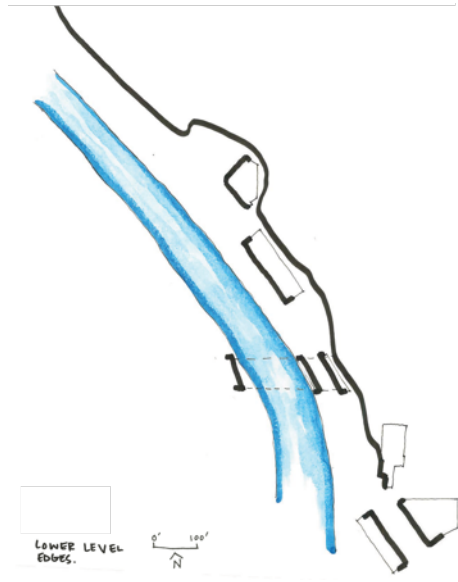


Figure 39: Understanding the Site - Edges
 This diagram compares spatial qualities of upper and lower levels of the site through perceived edge.

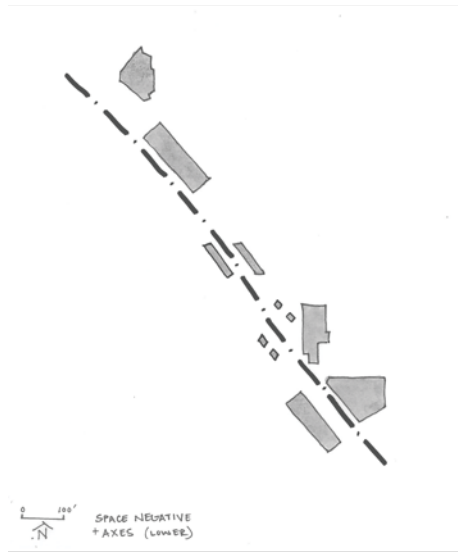


Figure 40: Understanding the Site – Axes
 This diagram compares organizing feature of the upper and lower levels of the site through axes.

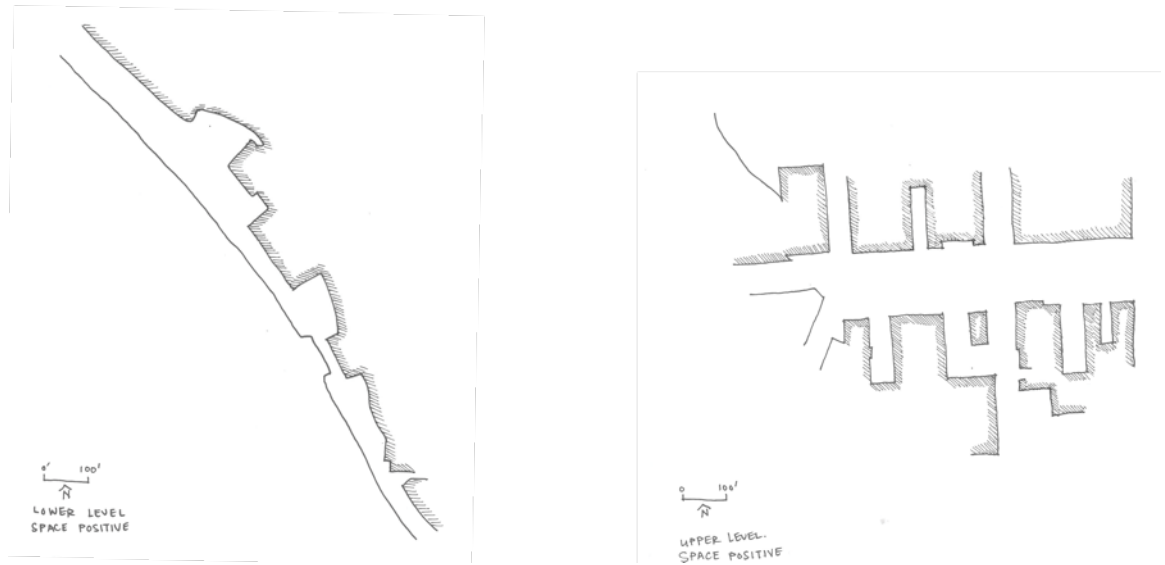


Figure 41: Understanding the Site - Space
This diagram compares the form of open space in the upper and lower levels of the site.

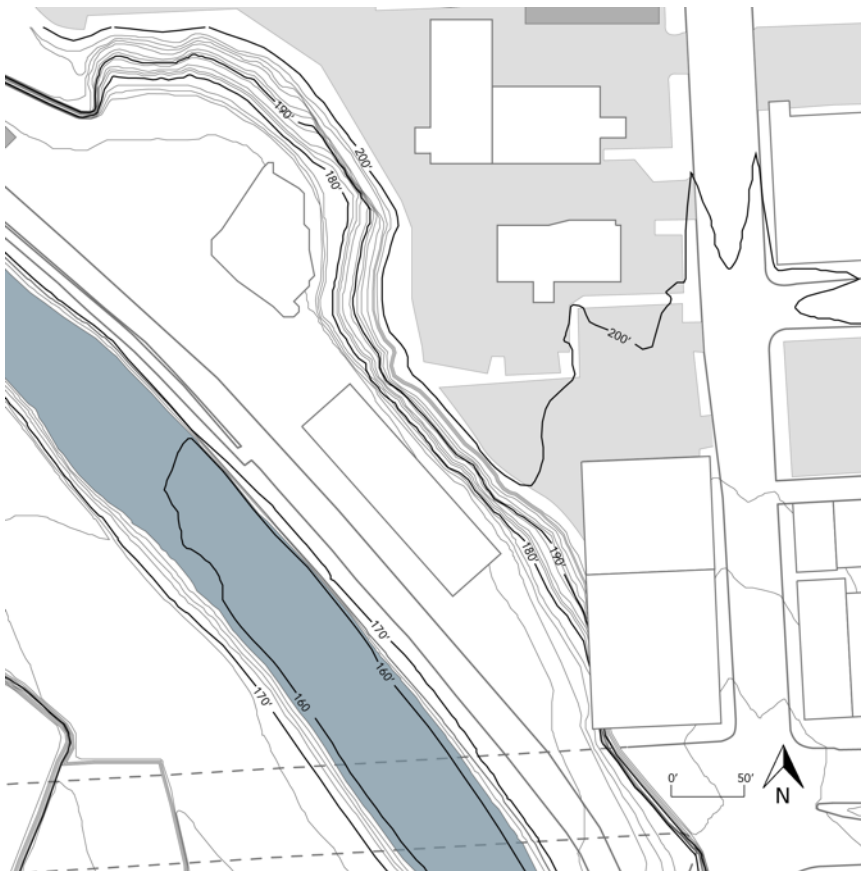


Figure 42: Understanding the Site – Topography and Existing Buildings
This diagram shows existing buildings, paved lot and topographic conditions of the site.



Figure 43: Site Plan – Existing
Shading captures the nuances of the complicated site, showing approximate heights of bridges.



Figure 44: Enlarged Site Section – Existing
The site section through exiting building and slope shows a steep drop in topography, and the North Avenue and Howard Street Bridges in the background.

Chapter 6: Stakeholders

The distinct character of the three neighborhoods that make up the site context results in a stakeholder group that is varied and diverse. Industry in Station North brought jobs, which attracted working class families. The families settled in the neighborhood, and many of them had children and put down roots. Over time, these residents and their offspring became involved, outspoken residents. MIIC/A impacted the demographic makeup of the neighborhood, as well. The college brought professors and art students. Many art students have remained in the neighborhood, as their careers grew into professions. During the 1970s a senior housing complex was built, adding 357 units. Today, the complex houses hundreds of seniors. Finally, there has been a recent effort to improve the Jones Falls Trail, which runs adjacent to the site. This improvement efforts have brought a mix of outdoor enthusiasts, families and bicyclists from within and outside of the city. This thesis gathered feedback through field observation, and from residents and visitors through the use of anonymous surveys, administered voluntarily by neighborhood groups and MIIC/A students.

Involved Residents

Neighborhood residents are considered primary users. The community surrounding North Avenue is made up of a mix of residents. Of this mix, the area in Bolton Hill and Station North are the most economically and racially diverse (census tract data is included in *Appendix B*) and hold residents that have long ties to the neighborhood. Over the past several years, Station North has begun to change demographically and housing

prices have risen³⁸. Residents respond to changes within the neighborhood by attending local meetings, calling and emailing their council person(s), and taking up active roles in the community.

Movement type of this user is confident, direct and efficient. The time range in the public realm flanks business hours for this type of user.

MIIC/A Students

With around 2,000 students on campus³⁹ daily or several times per week, Maryland Institute College of Arts plays a large role in the stakeholder group. Many students are from Maryland, but most are new to the neighborhood. There is an increasing number of international students, and students from out of state. Over the past few years, MIIC/A has expanded from Bolton Hill to Station North, and campus now straddles the North Avenue Bridge. Students and faculty move between the east and west sides of the Jones Falls Stream, sometimes in shuttles operated by the College, and sometimes on foot or bicycle.

Movement of this type of user is varied. New students unfamiliar with the area is slow paced, cautious and curious – users pause, look around and ask directions. Seasoned students tend to move more confidently, and often in groups. The time range in the public realm begins in the late morning and often stretches into the early hours of the morning, as there are several clubs, bars and coffee shops that have late closing times nearby.

38 Andrew Zaleski, "Can a Baltimore Neighborhood Avoid the Pitfalls of Gentrification?" Next City, August 4, 2014, , accessed July 16, 2017, <https://nextcity.org/daily/entry/gentrification-baltimore-station-north-arts-greenmount-west>.

39 MIIC/A, Communications. "Campus Enrollment Is Largest in College's History." Maryland Institute College of Art News. August 13, 2010. Accessed November 16, 2017. https://www.mica.edu/News/Campus_Enrollment_Is_Largest_in_Colleges_History.html.

School Kids

Like many residential neighborhoods in Baltimore City, there is a large number of school-aged children in Station North and the surrounding communities. There are several neighborhood and non-profit that run after school programs to fill the gap between the end of the school day and the end of the work day when parents can collect their kids. Many of these organizations run neighborhood afterschool programs that do not have brick and mortar spaces – the programs either share space with schools or parks, such as the Holistic Life Foundation, which runs its Mindful Moment meditation program through the schools.⁴⁰

Movement type of this user is sometimes sporadic, with burst of energy, and sometimes cautious, looking carefully before crossing streets, but is almost always curious, engaged and unselfconscious. The time range in the public realm stretches from after school to dinner time, when parents retrieve them.

Senior Citizens

As mentioned in previous chapters, a housing complex for seniors is located close to the site. These seniors are not unlike the involved residents in the fact that they are outspoken and concerned for the neighborhood. It is assumed that some of the older residents potentially have mobility concerns, and a need for increased access to healthcare and pharmacy.

Movement type of this user is can be labored and slow, requiring protected areas for resting at a range of intervals. The observed travel range for some members of this

40 Mindful Moment Program | Holistic Life Foundation. Accessed July 8, 2017.
<http://hlfinc.org/programs-services/mindful-moment-program/>.

user group was around 75' before needing to rest. The time range in the public realm for this user group is during daylight hours.

Weekend Visitors

With the Jones Falls Trail improvement effort, active weekend visitors have begun to emerge in the neighborhood. This user group consists of a wide range of ages and demographics, but tends to include outdoor enthusiasts and generally active people. Runners, walkers and bicyclists use the trail together. Some of these users are from within the neighborhood, but many are from elsewhere and utilize the neighborhood as an end point / destination, or a point of passage.

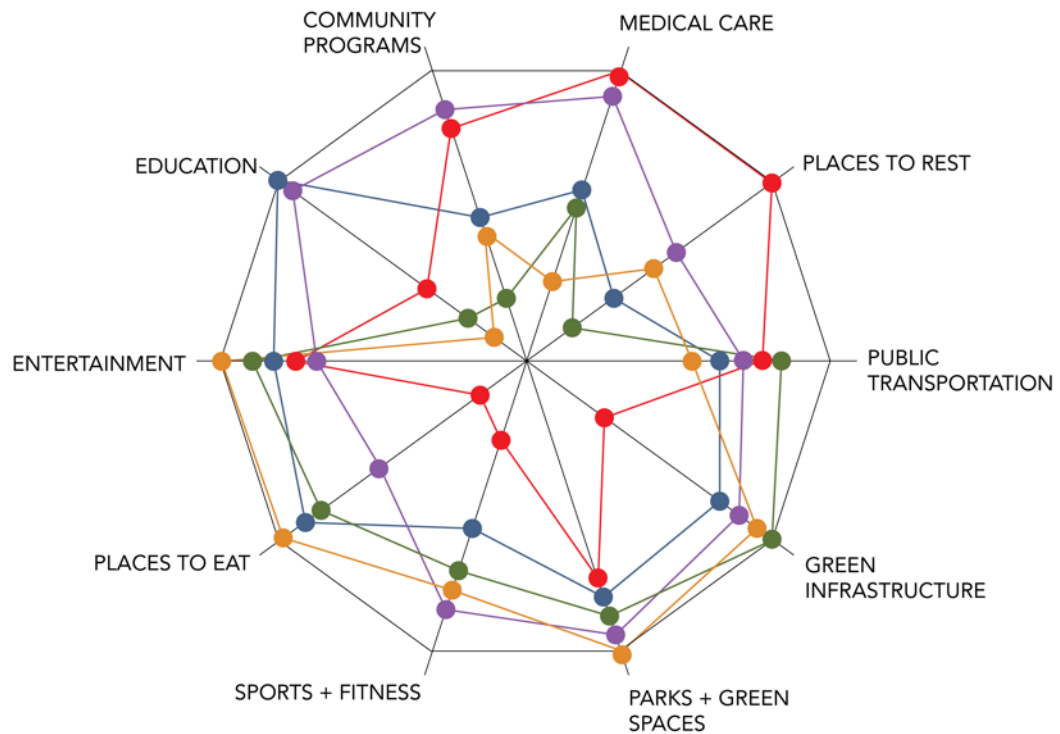
Movement type of this user is almost always active and full of energy. These users are fast and physically fit, able to climb and run. The time range in the public realm for this user type is generally on weekends, from dawn to dusk.

Programmatic Demands

After identifying specific user groups, data was collected in the form of field observation (conducted during the summer and fall of 2016 as a volunteer for the Baltimore Office of Sustainability, and in 2017 as a volunteer for Neighborhood Design Center in partnership with the Gehl Institute).⁴¹ Anonymous questionnaires were also used to collect specific feedback (survey response data is available in *Appendix C*). Program demand is based on the feedback from potential users and stakeholders. Responses were reviewed and analyzed. Inventory of existing program was conducted to

41 Gehl Institute. "Announcing the winners of our Open Call!" Gehl Institute. September 11, 2017. Accessed December 16, 2017. <https://gehl.institute.org/work/announcing-winners-open-call/>.

determine which program elements would be proposed.



SOURCES OF DEMAND:

INVOLVED RESIDENTS

SCHOOL KIDS

SENIOR CITIZENS

MII/C/A STUDENTS

WEEK-ENDERS

Figure 45 Diagram of Program Demand by User Group.

This diagram shows the demand for specific types of program by specific user groups. The outer edges show the highest demand, while the center point represents no demand at all.

Chapter 7: Program

Program Objectives

This thesis examines how to promote flexibility, access, opportunity and connection within the larger urban context. The selected program is based on community feedback and demand, outlined in the previous chapter. The building can be loosely defined as a *center for community*. In the rapidly changing Station North Neighborhood, there is an opportunity to rethink the traditional “community center”. The proposal includes a new building, two bridges, a public plaza, a parking “garden”, and several sets of public vertical circulation to connect residents with the Jones Falls. Two older buildings (a shed building and an old brick building housing the Streetcar Museum) will be demolished and that program will be absorbed into the new building. One existing building will be adaptively reused to absorb health and fitness program, and desirable retail (namely a pharmacy and local shops).

This thesis proposes a public space that acts as a connection, navigating irregular urban fabric, challenging landscape features and infrastructure to strengthen the cohesiveness of the neighborhood. In general, the program is a sensitive response to a specific urban condition and is largely place-specific; however, the method used can be applied liberally in similar urban contexts. The proposed community center is planned to function like a park. Parks provide the following benefits:

- (1) A place to gather with friends and family.
- (2) Unique opportunities for social interaction with strangers.
- (3) Space for recreation and relaxation.
- (4) Connectivity of urban fabric, but often without adhering to the grid.
- (5) Exercise and physical activity, both group and individual.

Program Summary – Re-Packaging the Existing Building

100 BODY:	SUB TOTAL:	25,945 Ft.²
101 Main Lobby	23' x 44'	1,400 Ft. ²
102 Program Specific Admin	10' x 10'	100 Ft. ²
103 Weight Room	50' x 50'	2,500 Ft. ²
104 Basketball Court	70' x 100'	7,000 Ft. ²
105 Indoor Play Area / Atrium	60' x 50'	3,000 Ft. ²
106 Exercise / Classrooms	40' x 50'	2,000 Ft. ²
108 Locker Rooms + Restrooms	12% of gym area	2,100 Ft. ²
109 Community / Multi-purpose	40' x 50'	2,000 Ft. ²
110 Circulation	15% of total	3,045 Ft. ²
111 Maintenance + Mech	12% of Total	2,800 Ft. ²
200 MIND:	SUB TOTAL:	13,380 Ft.²
201 Vestibule	10' x 15'	150 Ft. ²
202 Administration Offices (main)	28' x 50'	1,400 Ft. ²
206 Flexible Space / Classrooms	(4) 30' x 30'	3,600 Ft. ²
207 Resource Center	60' x 40'	2,400 Ft. ²
209 Game Room / Arts / Crafts Rooms	(3) 20' x 30'	1,800 Ft. ²
212 Reading Room	30' x 60'	1,800 Ft. ²
213 Restrooms	25' x 20'	500 Ft. ²
214 Circulation	15% of total	1,730 Ft. ²
300 SPIRIT:	SUB TOTAL:	5,010 Ft.²
401 Non-denominational Sanctuary	40' x 50'	2,000 Ft. ²
404 Meditation Rooms	(4) 10' x 10'	400 Ft. ²
405 Roof Garden / Greenhouse	30' x 60'	1,800 Ft. ²
406 Circulation	15% of total	810 Ft. ²
TOTAL		44,335 Ft.²

Additional program includes:

- 6,000 sq. ft. of space for a bicycle warehouse/workshop and offices for a local non-profit focused on fixing and maintaining bicycles (currently in search of a new space)⁴²
- 20,000 sq. ft. of space for the demolished Streetcar Museum program.
- 2,000 sq. ft. of space for a café – the area is quickly developing, and while there are

⁴² Velocipede Bike Project. "Home." Velocipede Bike Project. Accessed December 17, 2017. <http://www.velocipedebikeproject.org/>.

other eateries and coffee shops, there is a need for more.

- 10,000 sq. ft. of space for retail, namely a pharmacy and small local shops. This type of program is in demand, and the neighborhood could benefit greatly from adding diversified program including retail.

In general, community centers are places for meetings and gatherings. These centers are vehicles for community awareness and involvement. The program has been shaped generally by the immediate context and responds to the unique needs of this community. The context of the site and the community has helped to outline specific program objectives.

While this paper outlined specific stakeholder groups in chapter six, the program of the community center is tailored to two specific user groups of significant importance: school kids aged 5 to 15 years, and senior citizens of retirement age. These two groups are of interest specifically because of the demographic make-up of the neighborhood, the existing neighborhood programs devoted to these groups, and the lack of physical infrastructure for those existing neighborhood programs.

The program proposes these two distinctly different age groups comingle, in order to reap benefits of interaction, and to promote social connectedness through design intervention. Early on, the program specifically targeted four of the *Six Dimensions of Wellness*, a theory about wellness presented by Dr. Bill Hettler, co-founder of the National Wellness Institute.⁴³ These four dimensions are spiritual wellness, emotional wellness, physical wellness and social wellness. Within the scope of these four dimensions of health, program has been selected with the ideas of mind / body health and individual / community health. Occupational and financial wellness have also been considered for this thesis, but were not a main focus. These categories

⁴³ <http://www.nationalwellness.org/> (2017).

fit loosely into the classroom program, but no *specific* educational program has been developed.

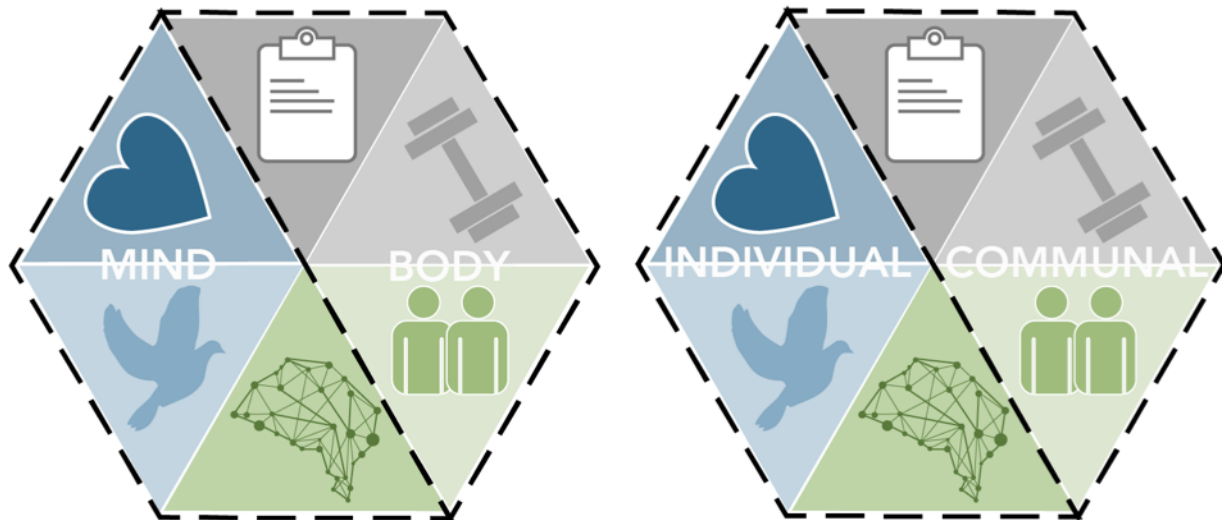


Figure 46 Program Objectives

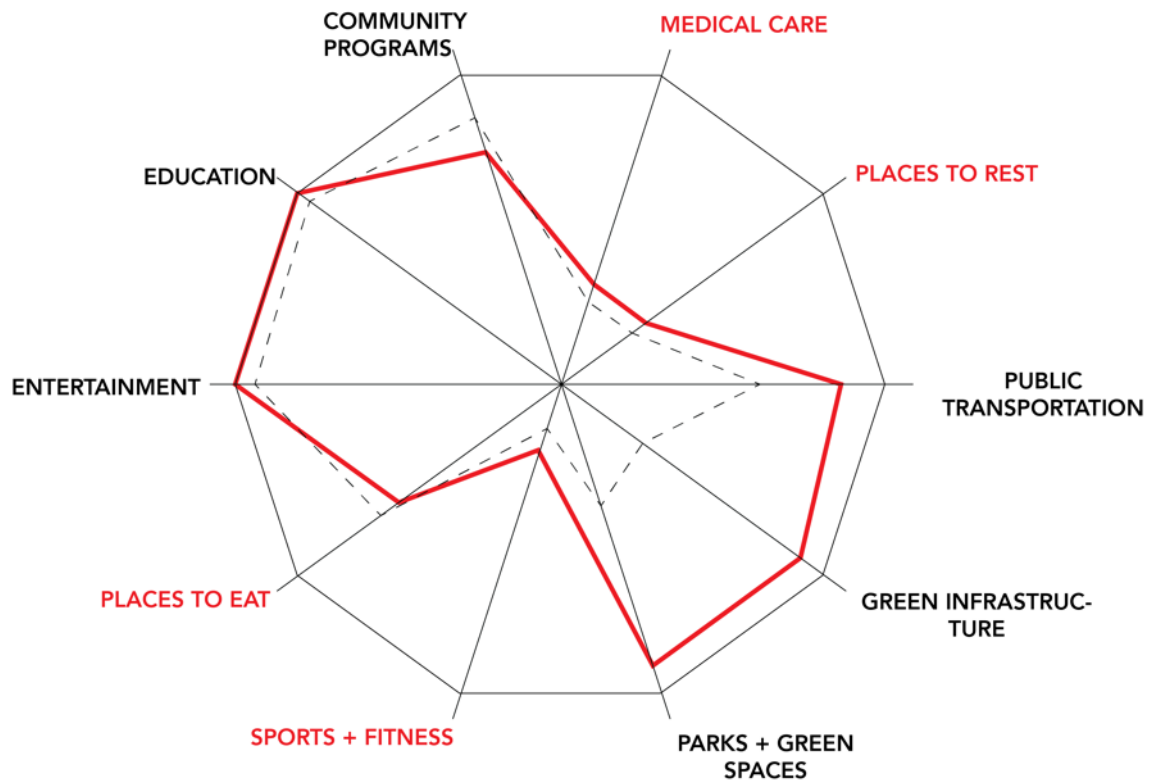
The four dimensions selected for program focus are spiritual wellness, emotional wellness, physical wellness and social wellness. These groups are grouped into categories of mind / body wellness and individual / community wellness (diagram interpretations by author).

Until the spring of 2017, the John Eager Howard Recreation Center, located not far from the site, housed many of the youth programs for the neighborhood. The center was attached to an elementary school, also named for John Eager Howard. The school and recreation center are currently undergoing renovation, which is part of Baltimore's initiative to improve the city's schools.⁴⁴ The new building will not occupy the 40,000 sq. ft.² footprint of the existing building, but will be located near the site. This proposal assumes the future John Eager Howard Elementary School will be located on its existing site.

Program – Existing and Accessibility

There are some programmatic elements that exist in the neighborhood, but are inaccessible due to poor visibility or navigation issues.

⁴⁴ Yvonne Wenger (2015). "City rec center: a refuge for kids in West Baltimore." Baltimore Sun.



PROGRAM:

AVAILABILITY ———

ACCESSIBILITY - - - - -

Some neighborhood programs and amenities lack visibility or are difficult to access due to physical obstacles, such as steep topography, bodies of water, or wide arterial streets.

Figure 47 Program Objectives

The above diagram shows which program is available but inaccessible in the neighborhood. The outer edges should be read as fully accessible, with the center point as completely inaccessible. For instance, green infrastructure is present in the neighborhood, but seems almost totally inaccessible due to topographic conditions.

Program Special Problems and Issues

One challenge for this program is that it is located in a rapidly changing neighborhood.

Gentrification and growth has had major physical and demographic impacts. This thesis proposes program to benefit and connect neighborhood residents with each other and with existing amenities.

Another special challenge to this program is the growing number of seniors in the area. The growth in number of seniors is not specific to Baltimore; as baby boomers age, many are moving back to urban areas where services are closer and social activities more convenient. Younger seniors are more tech-savvy than their older counterparts, making them a new sector in the senior center market. A recent report from AARP⁴⁵ recognizes the need for an evolved senior center model. As a portion of the program presented here, it is important to list new models of senior center, as cataloged by The National Institute of Senior Centers:

1. Multi-generational community centers
2. Wellness
3. Lifelong learning
4. Continuum of care / transitions
5. Entrepreneurial center
6. The Café program

The program tackles the first three topics from the list, and overlays traditional community center uses, as well as programs from elementary schools.

Program Description

The main program objectives are:

Indoor:

1. Basketball courts / gym
2. Exercise classrooms: martial arts, self-defense, aerobics, dance
3. Weight room / workout equipment room
4. Community room for meetings, social gatherings and neighborhood information sessions

⁴⁵ Kathryn Lawler (2011). *Transforming Senior Centers into 21st Century Wellness Centers*, 9.

5. Classrooms: health, financial wellness, meditation, crafts, games, adult education, arts, afterschool programs
6. Supporting program, such as administrative offices, restrooms, locker rooms, and mechanical / maintenance rooms
7. Bicycle non-profit program
8. Streetcar Museum
9. New Jones Falls Welcome Center
10. Café
11. Retail

Outdoor:

1. Garden
2. Bridges
3. Vertical Circulation
4. Plaza

The indoor basketball courts (1) are important to the neighborhood, and create a unique social opportunity. They are large, noisy spaces, brightly lit and very public. Because the basketball court is double height, there is an opportunity to position the court at the top of the existing building, with reinforced structure. This would serve the purpose of giving the building visible depth from North Avenue, and prompting visitors to travel through the building. This space needs to be highly visible from the main entrance and located directly off the main corridor, preferably as the terminus to the central axis of the building.

The exercise rooms (2) occupy nearly the same square footage as the basketball court, but in smaller pieces. These supporting recreational spaces are also noisy and brightly lit, but they are more private and serve a smaller number of users, generally fewer than twenty. The

primary function of these rooms is for classes like self-defense, dance and martial arts – the floors of these rooms will sustain a variety of forces as users jump and land, making the ground level a logical place to locate this portion of the program. These spaces can be disbursed around the larger, more central spaces and be sized to fit as needed. These spaces benefit from visible locations, or easily navigated routes directly off the main circulation areas.

The weight and workout equipment room (3) functions like smaller gym rooms, but instead of being empty, the room holds stationary equipment. While there is less noise and boisterous movement in this space, they still require visibility and adequate structure.

The community room (4) holds functions such as meetings, social gatherings and neighborhood information sessions. Unlike the fitness program spaces, this space needs to have adjustable light levels based on the event. For instance, the lighting difference between a fundraiser luncheon and an evening presentation require good flexibility from diffuse bright to dim with spotlighting. This space needs to be highly visible from the front entrance of the building. This program will be placed in the new building adjacent to the existing building.

Classrooms (5): health, financial wellness, meditation, crafts, games, adult education, afterschool programs. These spaces should be near each other, but do not necessarily need to be in a specific configuration. That is, classroom spaces can act as “packing” for the more restrictive spaces within the building.

Supporting program (6) includes such uses as administrative offices, restrooms, locker rooms, and mechanical / maintenance rooms. These supporting program types are generally more private. While they require a degree of accessibility, they do not need to be as visible as the more public program.

The bicycle non-profit (7) needs to serve both public and private needs. The offices

are private, and can be packaged around the more public workshop and warehouse spaces. The warehouse spaces are large, open spaces. They should have adequate lighting and electrical capabilities. They should also have enough room to move about; bicycles will move in and out of the space. Finally, the warehouse and workshop should have adequate space for tool storage.

The Streetcar Museum (8) program is translated exactly from the demolished building with one change: a second level with a floating gallery and catwalks has been added. The ground level will house the streetcars. This is in part due to the risk of flooding. The streetcars are designed to withstand the elements of weather, and the more delicate program – artifacts and items that could be damaged – are housed on the second floor, above the flood plain. The museum should be bright, airy and open with a very visible presence in the neighborhood. It should feel accessible and welcoming.

The new Jones Falls Welcome Center (9) should bridge the gap between the existing urban setting and the “natural” setting. The Jones Falls Stream has been used for industrial purposes for decades, but the recent renovation efforts have positioned the stream to return to its natural state. The Welcome Center should honor this move, and not encroach too much into the stream. It should allow a lovely panorama view of the stream, but hold visitors back. It should also mitigate circulation flow as a stream does – pillars will act as boulders in a stream. Visitors will flow in, navigate around the pillars, and then out onto the plaza.

The café (10) will occupy a very small footprint of about 2,000 sq. ft. but plays an important part in the program. Because it is a very public space, it should be located along a main street or sit prominently in the plaza. The building should meet the requirements of a commercial kitchen, allow for proper ventilation and storage, but should also have a

transparency that invites customers inside.

Retail (11) should be on the ground level and occupy street frontage of the building. Retail program should be very visible and transparent and invite users inside. The windows should be large and entries obvious. These uses should border the existing commercial street (North Avenue) and extend to the plaza. Floorplans should be open and able to accommodate retail fixtures.

The program was developed early in the design phase, and modified according to survey responses (*Appendix D*) and neighborhood inventory (*Appendix C*).

Chapter 8: Schematic Design

Process

This thesis uses a process of scaling back and forth from the large diagrammatic urban design, to the dimensional scale of the site, to the detailed scale of the building. To begin the process, a general area with a few potential site options was selected. To explore positioning of the building, and to address the connectivity challenges of the site, a scaled physical model of the program was used. The program pieces were overlaid and rearranged on a map containing topographic contours, streets and existing buildings to explore possible benefits and challenges of the different site options.

Comments and thoughts on site options have been included for clarity of selection choice. A combination of Options A and C was selected for the connections to both the upper level of the site at North Avenue and Howard Street, and the lower level of the site along Falls Road. During this process, it became clear that improving connection of the neighborhood did not simply mean connection on a flat plane, but also including vertical connections. This resulted in a dynamic 3-dimensional challenge.



Figure 48 Program on site – Option A.

<i>Benefits</i>	<i>Challenges</i>
<ol style="list-style-type: none">1. Building can navigate topography2. Compact tower can be landmark3. Easy access to Jones Falls from both Howard and North Avenues	<ol style="list-style-type: none">1. Drainage / erosion2. Crowded site3. Can pose ADA difficulties4. Nothing across North Avenue



Figure 49 Program on site – Option B.

<i>Benefits</i>	<i>Challenges</i>
<ol style="list-style-type: none"> 1. Building is on a flat portion of land 2. Tower will act as landmark 3. Easy access to Jones Falls from both Howard Avenue 	<ol style="list-style-type: none"> 1. Drainage / erosion 2. Crowded site 3. Can pose ADA difficulties 4. Nothing across North Avenue 5. Requires zoning variance

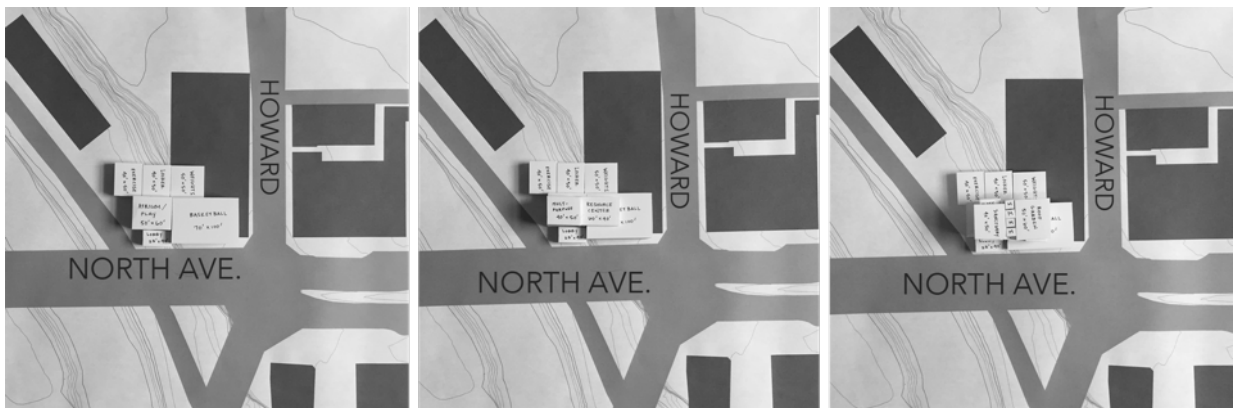


Figure 50 Program on site – Option C.

<i>Benefits</i>	<i>Challenges</i>
<ol style="list-style-type: none"> 1. Building can navigate topography 2. Compact tower can be landmark 3. Easy access to Jones Falls from both Howard and North Avenues 4. Makes use of existing vacant building 	<ol style="list-style-type: none"> 1. Drainage / erosion 2. Crowded site 3. Can pose ADA difficulties 4. Nothing across North Avenue 5. Adaptive reuse of existing 6. Requires zoning variance

After reviewing the benefits and challenges of each site and layout, a close inspection of the existing building was performed. Existing plans were obtained and reproduced by the author to fully understand relevant conditions and proportions. Program was then balanced

against the existing structural bays. Attitudes about engaging old and new were explored diagrammatically in axonometric and plan drawings.



Figure 51 View of Existing Building
This photograph of the existing building was taken at the intersection of North Avenue and North Howard St.



Figure 52 Plan of the Existing Building with Site Context
This photo shows the existing building is perched dramatically on a steep slope. Connection to the stream below is severed and invisible from the street.

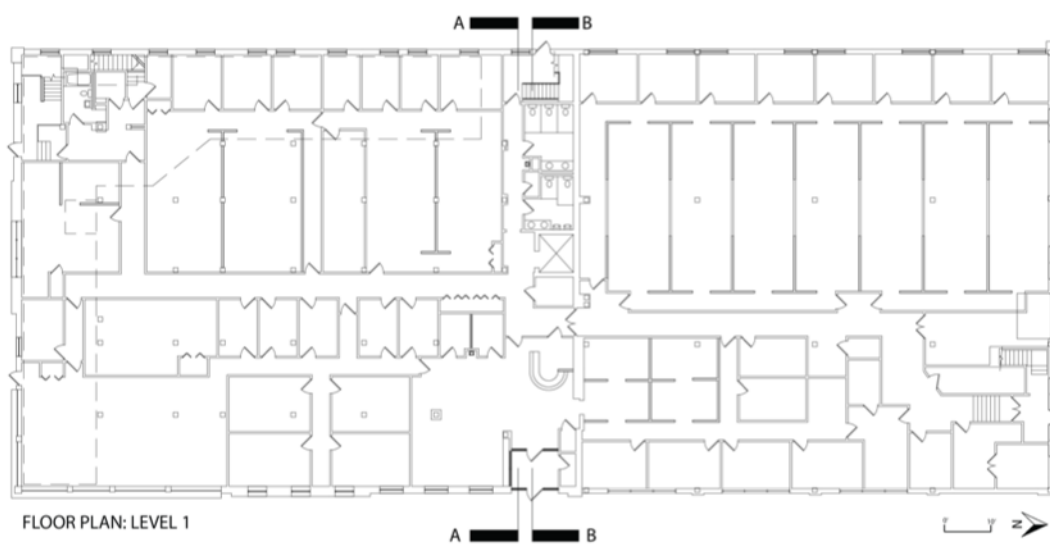
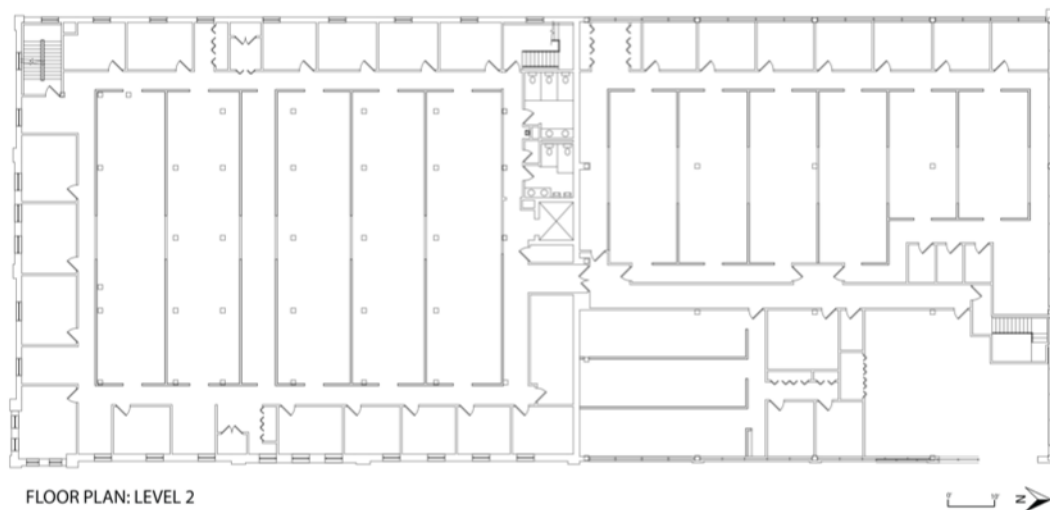
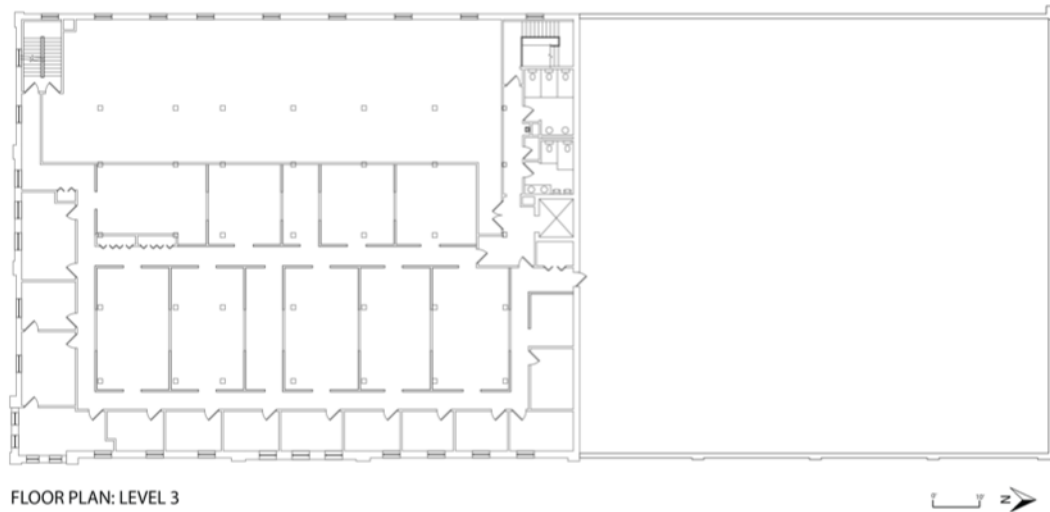
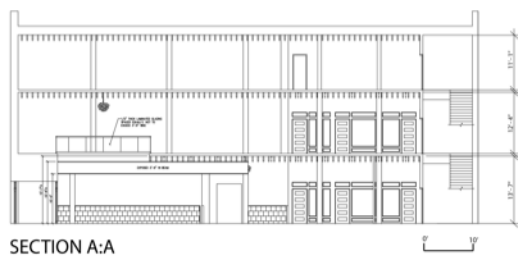
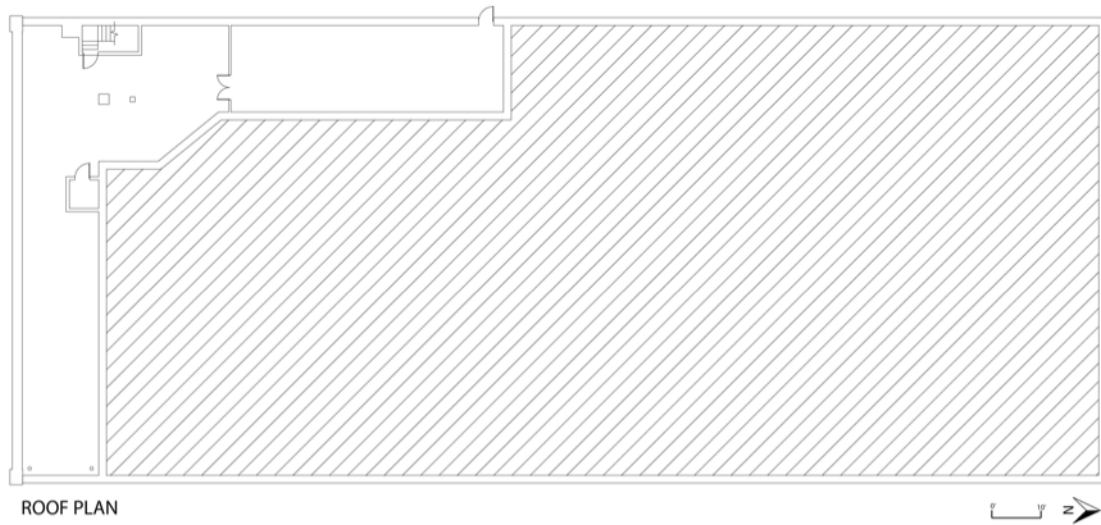
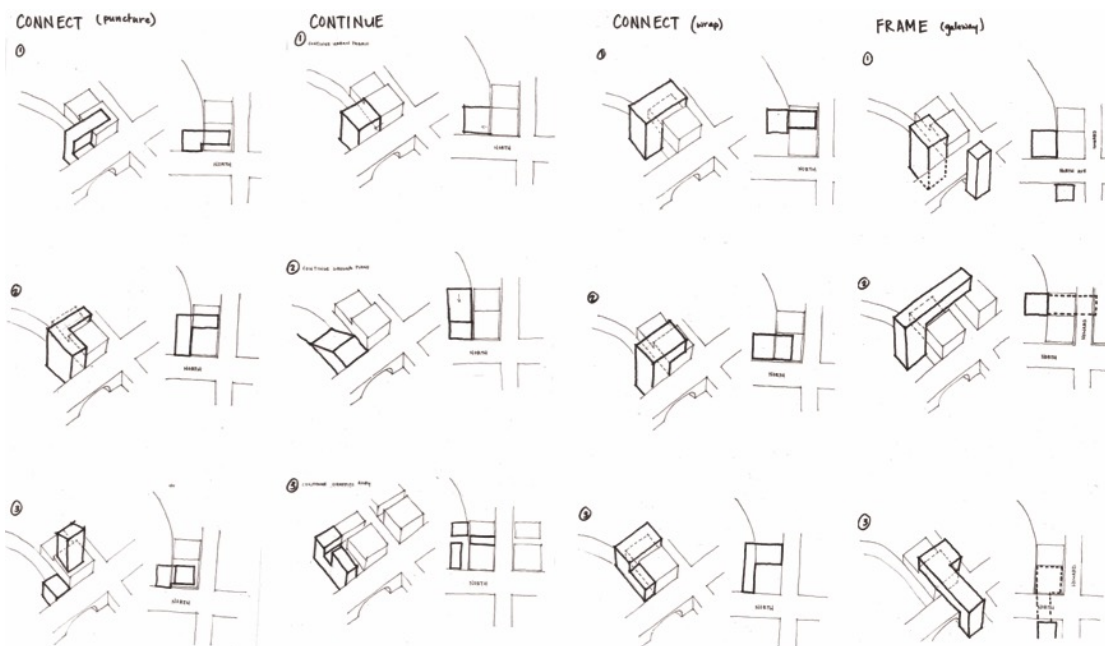


Figure 53 Floor Plans - Existing Building
The existing building has an irregular grid system in the south end of the building. The north half of the building, added after the original structure was built, has a much more regular bay configuration.



*Figure 54 Sections- Existing Building
Sections through the existing building show levels have modest heights, but there are opportunities for a tall atrium space*



*Figure 55 Diagrams – Options for Comingling Old and New
This diagram shows several attitudes about how old and new can be arranged. This diagram helped to inform design strategies and formal decisions.*

During the process of examining how old and new might relate to each other, it became apparent that a successful design would be contingent on developing a set of design principles. Design principles help to set a frame work and guidelines by which to judge concepts. The following principles focus on cultivating connections, and create a rubric by which iterations could be measured.

- ① Discernable path — the path should be visible, tactile or acoustical in such a way that it legible as part of a system.

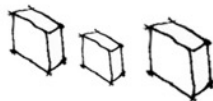


The path must have some sort of coherence, whether it be continuous or rhythmic

- ② Likeness/Resemblance/Gestalt — the system should give clues of connectivity through similarities or gestalt...

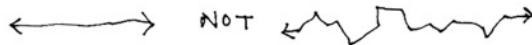


or



similar proportions, forms, materiality, etc.

- ③ Conductivity — ease of "flow" — there should be fluid movement back and forth between destinations. The speed (busy/fast or calm/slow) is not considered in this, but ease is the important term. "Ease" could be synonymous w/ directness.



④

Destination — water, electricity, people do not just wander; they each look for desination. Destinations should reveal themselves AS DESTINATIONS.



After exploring attitudes about comingling old and new through diagrams, and developing a set of design principles, the site was reexamined in more detail. Ideas about how the different formal arrangements of the building would impact the larger neighborhood context were explored and tested.

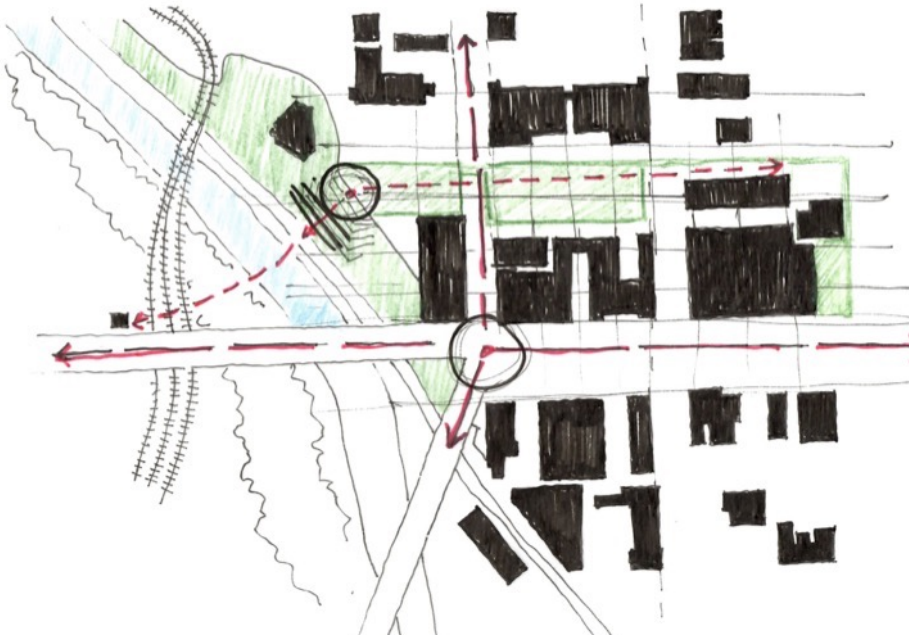


Figure 56 Site Explorations – Creating a Path to the Light Rail Stop
This diagram explores options for a new path to the light rail station from the senior housing. A concept for terraced rain garden and stair emerges as a strategy to increase connection and mitigate storm water runoff.



Figure 57 Site Explorations – Adding Density to the Neighborhood
Infill can help to tie the urban fabric together, making a more cohesive neighborhood.

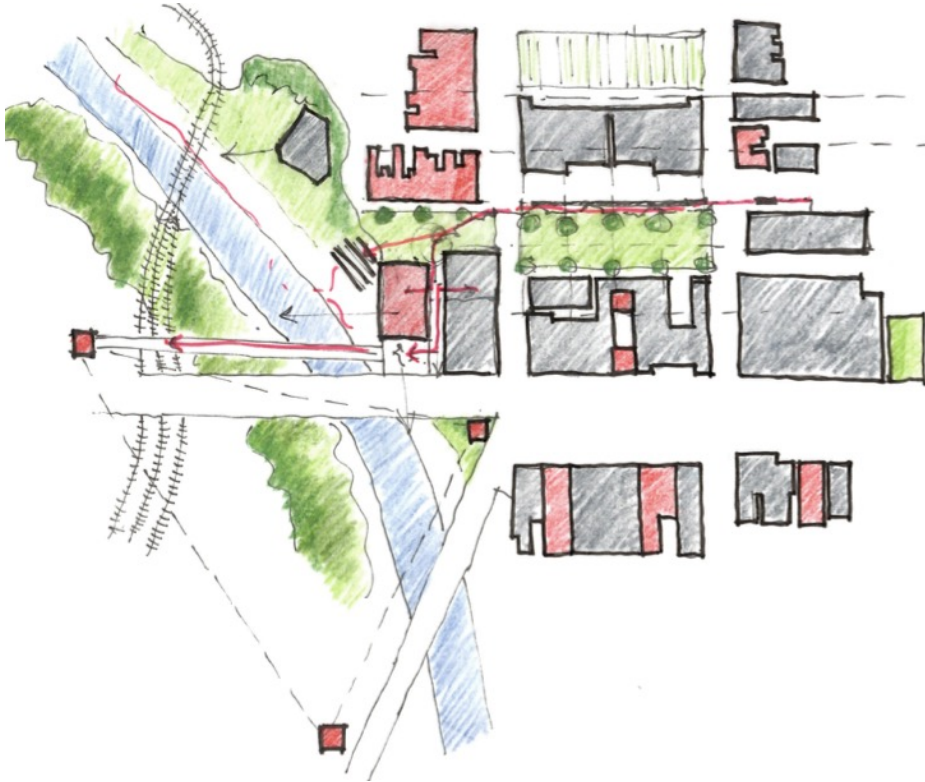


Figure 58 Site Explorations – Combining Path and Infill

This diagram shows how the infill and path could be combined to create a continuous flow from one side of the site to the other.

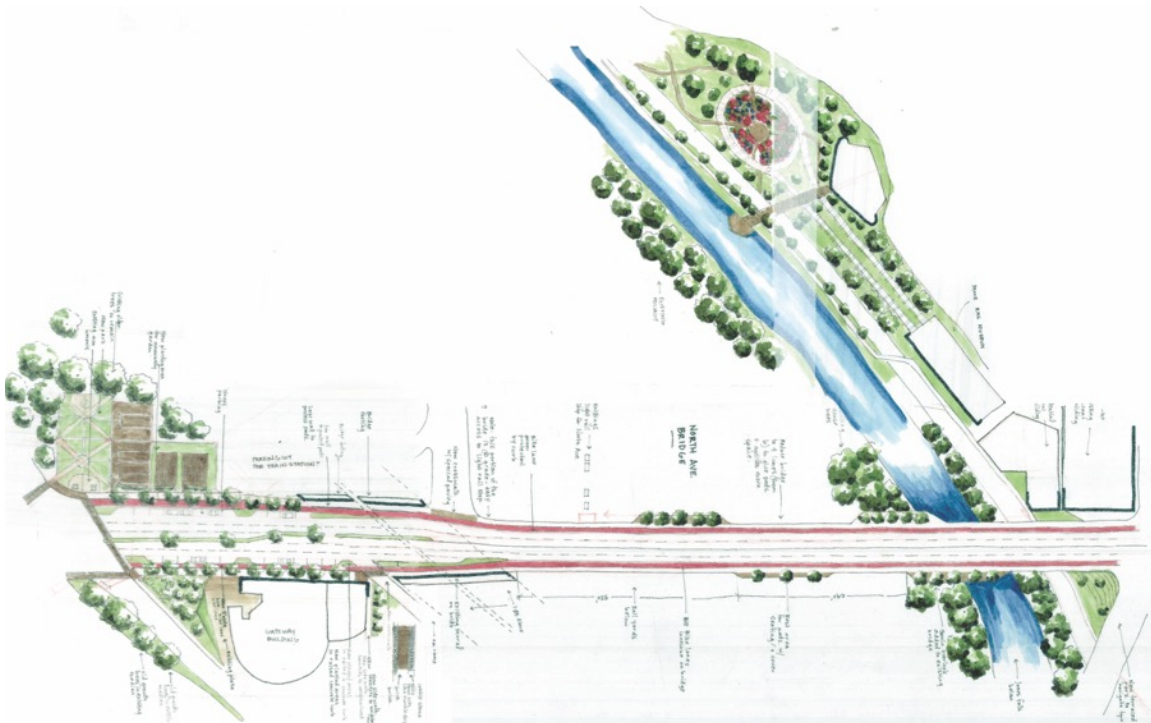


Figure 59 Site Explorations – Adding Green Space and Bike Lanes

This diagram begins to speculate on how the existing urban landscape could be organized. Tree placement can help to define outdoor spaces, reinforce soil on steep slopes and add a manicured edge to the stream.

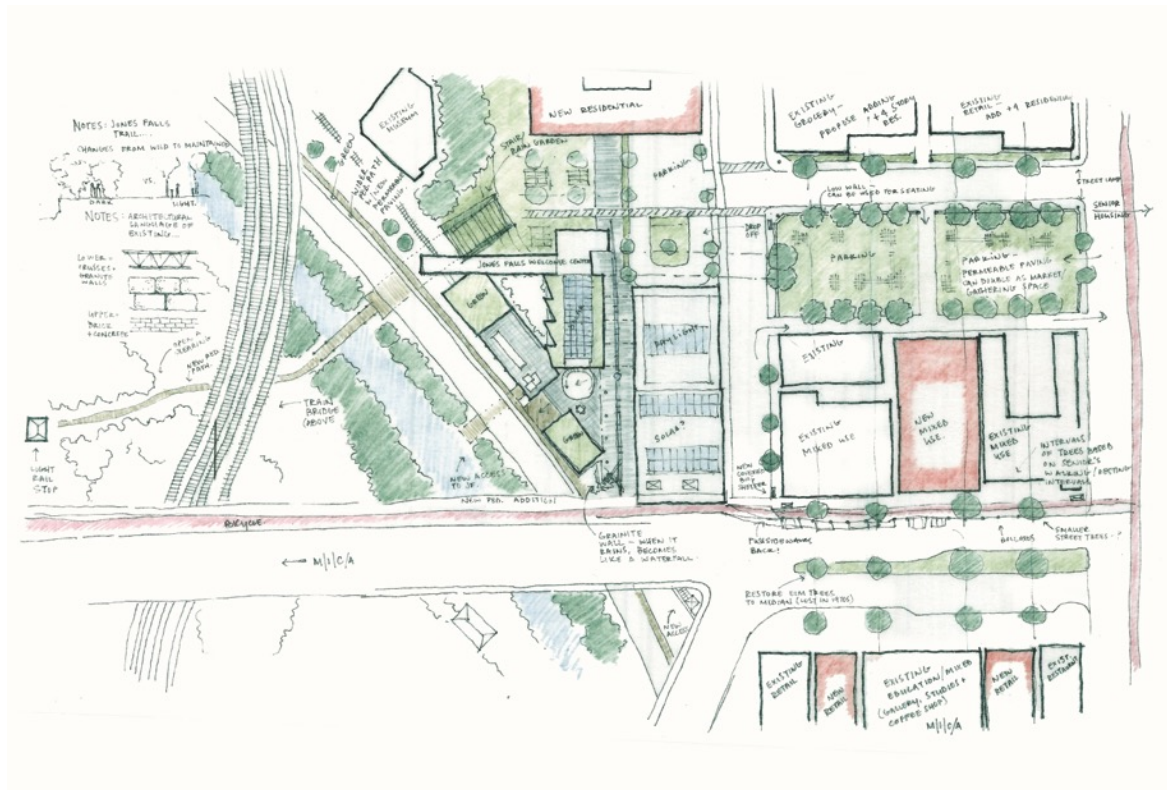


Figure 60 Site Explorations – Adding Density and Diversifying Use
 This diagram organizes the urban plan and speculates on specific uses and placement of additional buildings.

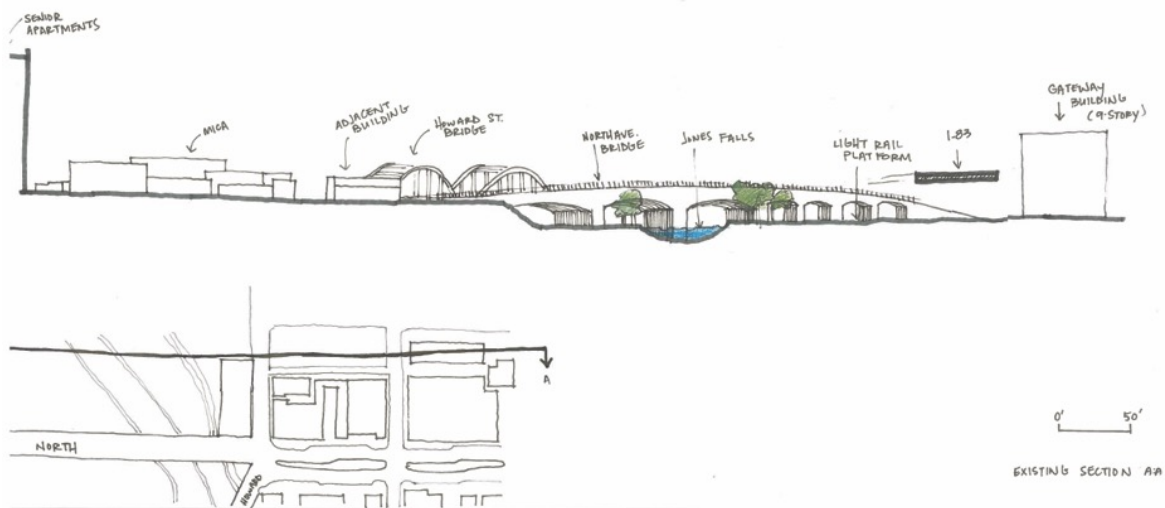


Figure 61 Site Explorations – Adding Green Space and Bike Lanes
 This diagram begins to speculate on how the existing urban landscape could be organized. Tree placement can help to define outdoor spaces, reinforce soil on steep slopes and add a manicured edge to the stream.

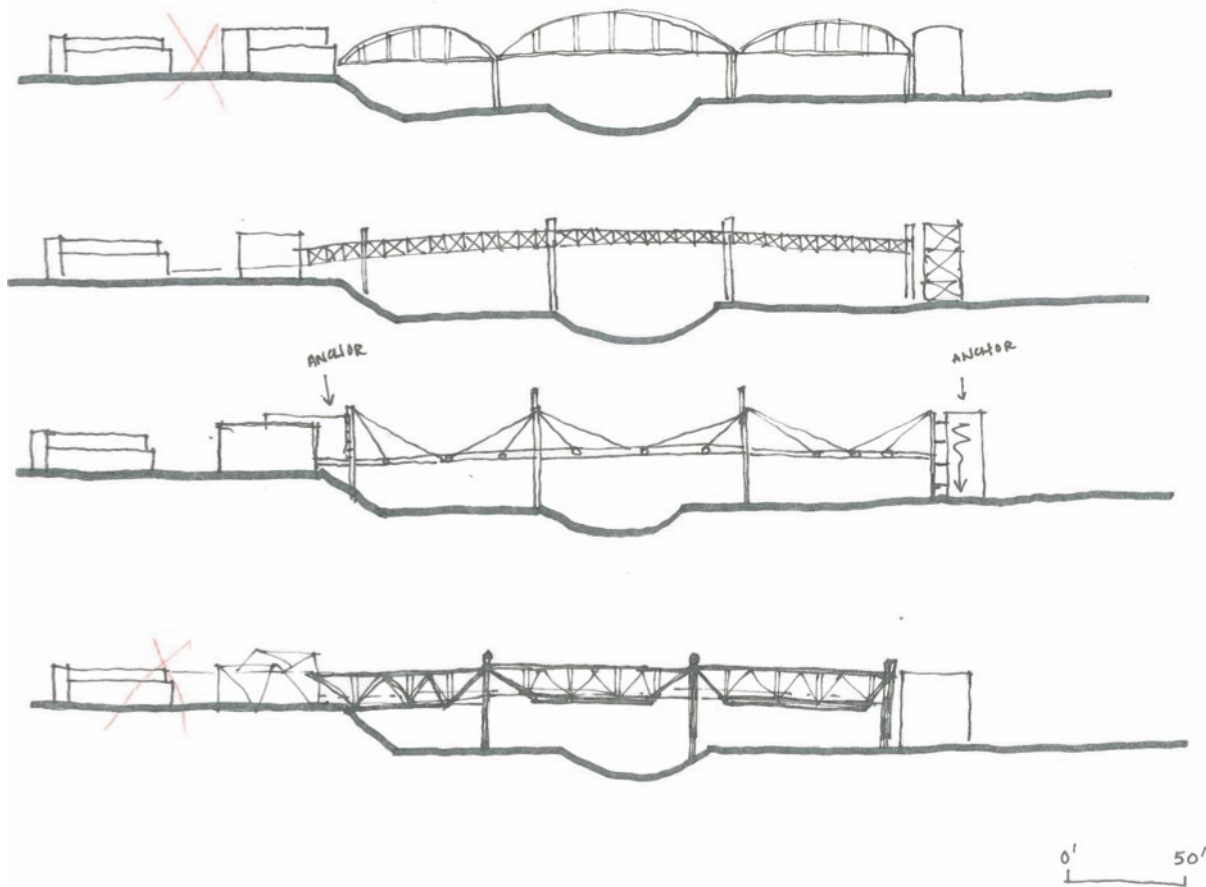


Figure 62 Site Explorations – Options for Pedestrian Bridges

These sketches explore ideas about the architectural language of the bridges. Architectural language expands on styles of existing structures.

Pedestrian bridges are an important part of the architectural program. To connect the east and west sides of the Jones Falls, there must be several opportunities for neighborhood residents to safely cross the stream. Ideally, these crossing opportunities should also engage residents with the stream, allowing them to develop a close relationship with the Jones Falls. The isolated experience of driving a car over the existing North Avenue Bridge does not connect residents with this existing neighborhood amenity, but severs them from it. Views to and over the stream, and engagement at close proximity with the water will help the community to reclaim the stream as a part of the neighborhood.



Figure 63 Parking Garden Development

The above sketches explore the development of the parking garden. The open space (currently used as a parking lot) could be retrofitted with permeable paving and a low wall that could be used as a bench. Adding shade trees would help to define the space and make an outdoor room. The lot could have a dual function, serving parking needs during business hours, and offering a place for outdoor markets on weekends and evenings.

After exploring the site development in greater detail, a digital model was produced to allow for quick formal studies of the new building. These studies were used to test how the new building would engage with the topography, and the existing building.

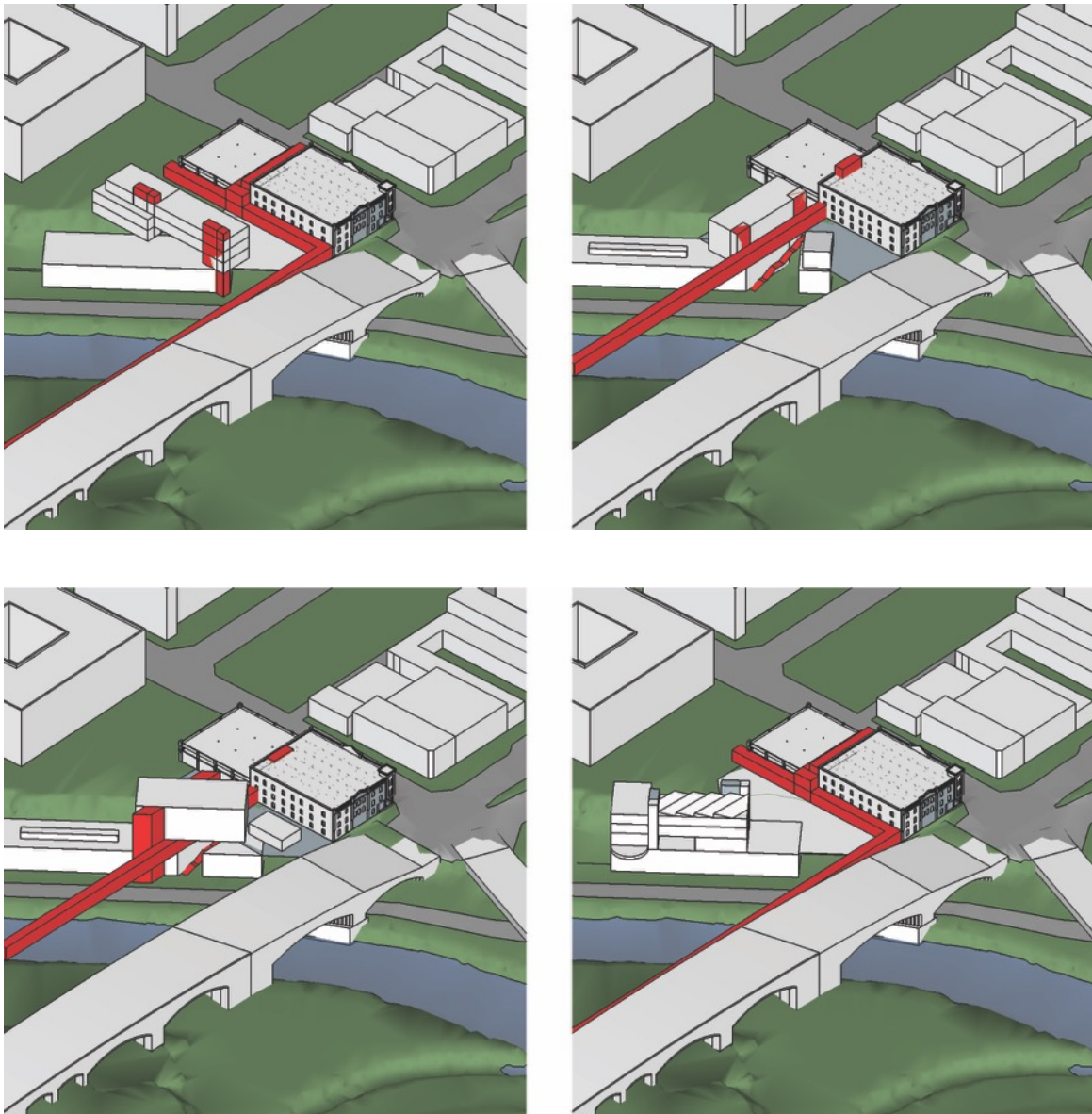


Figure 64 Formal Studies

A digital model was developed to examine the various ways in which the new building can engage with existing landscape and historically protected building.

An attempt to place circulation spaces (shown in red) highlighted the difficulty of the site. A pedestrian bridge from the north end of the site to the light rail was the most direct route, but was obstructed by an existing trestle bridge, still used by freight trains. The

pedestrian bridge was instead placed adjacent to the North Avenue bridge. While this is not the best placement, it deals with existing conditions and proposes a solution that will help to mitigate the conditions of the bridge. It offers pedestrians a protected route where there is currently none. Difficult site issues pose rich opportunities for educational growth. Occasionally, the right solutions are not necessarily the solutions envisioned at the outset.

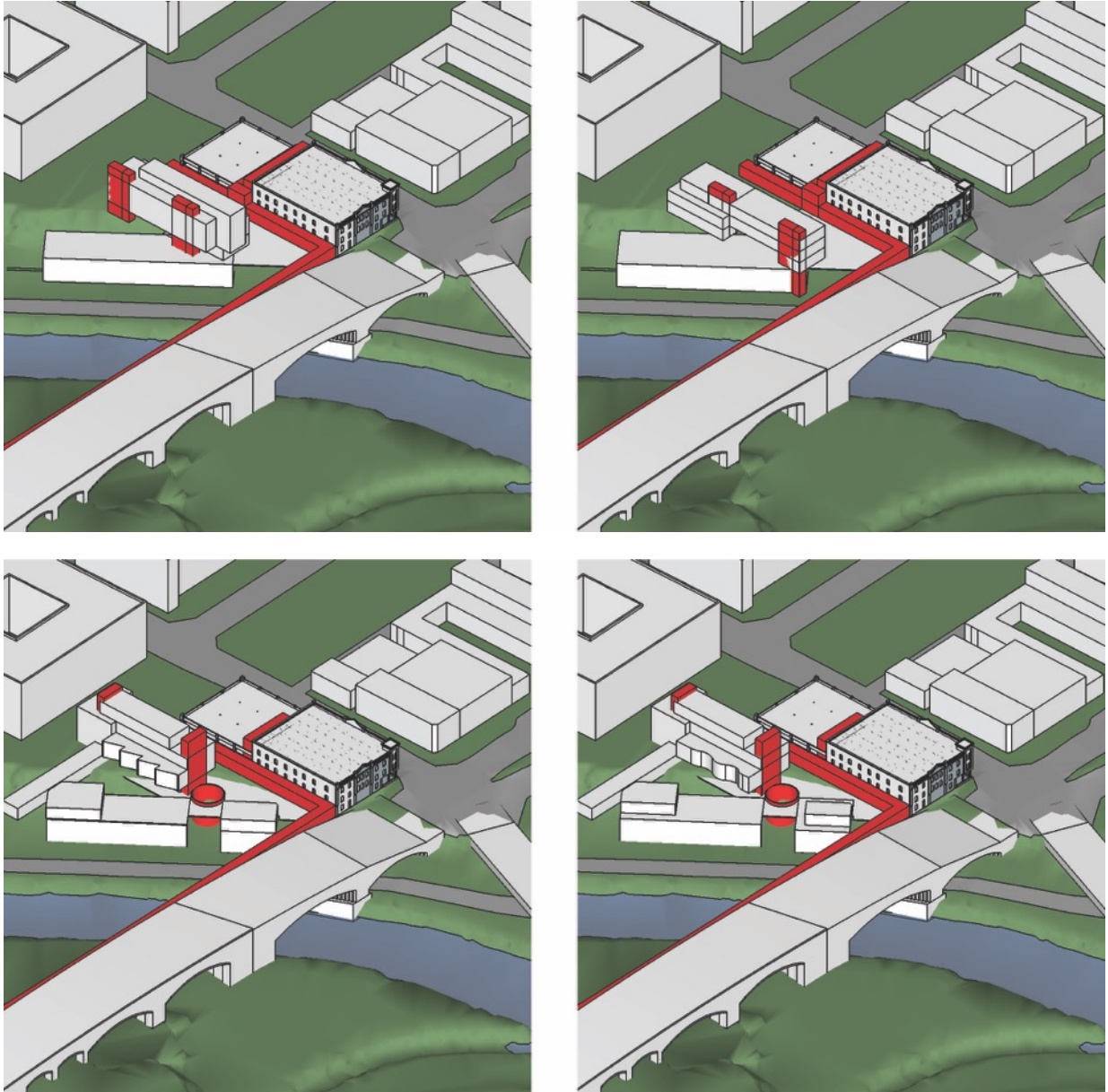


Figure 65 Formal Studies

A digital model was developed to examine the various ways in which the new building can engage with existing landscape and historically protected building.

The plans, sections and elevations were developed simultaneously with the formal development. The process included sketching, diagramming and digital modeling. Each of the methods allowed for different observations, and each informed the other.

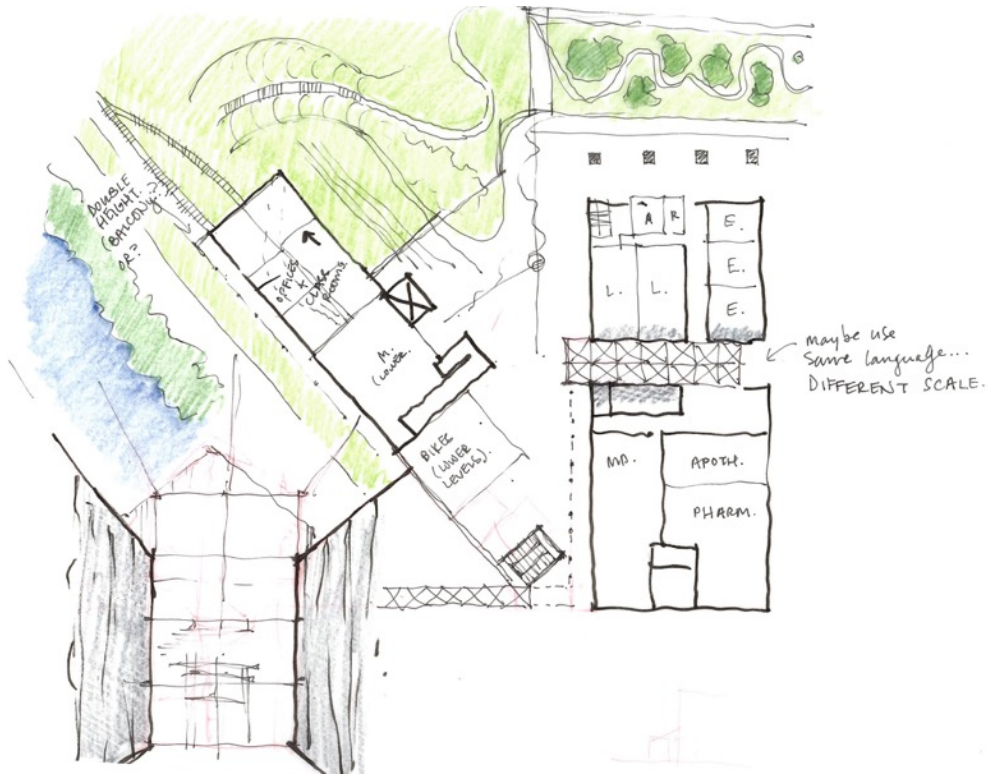


Figure 66 Plan Studies

This plan imagines puncturing the existing building and creating a triangular plaza with a terraced rain garden and stair at the north end of the site.

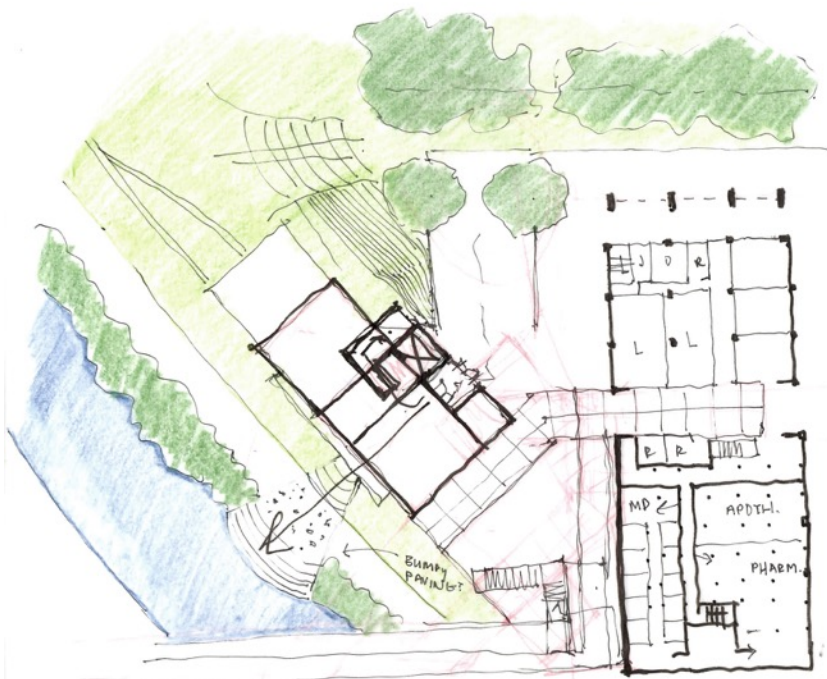
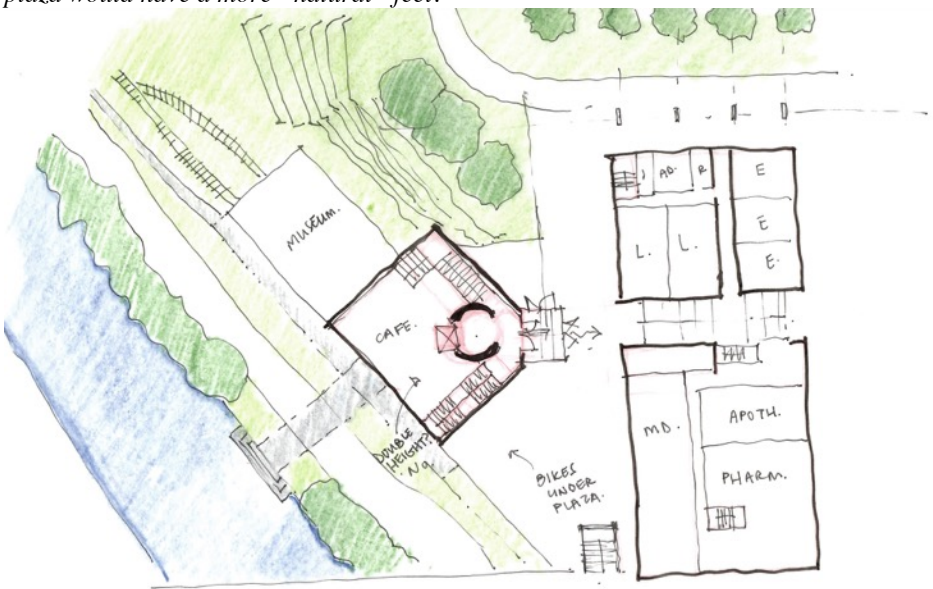


Figure 67 Plan Studies

This plan imagines puncturing the existing building and creating two plazas, each with their own stair down to the stream. Each plaza would have distinct character – the south plaza would have an urban character, and the north plaza would have a more “natural” feel.



CONNECTIONS .



— something we all recognize as fitting together...

Figure 68 Plan Studies

This plan begins to connect the buildings and speculate on how the new building could speak to the old building.

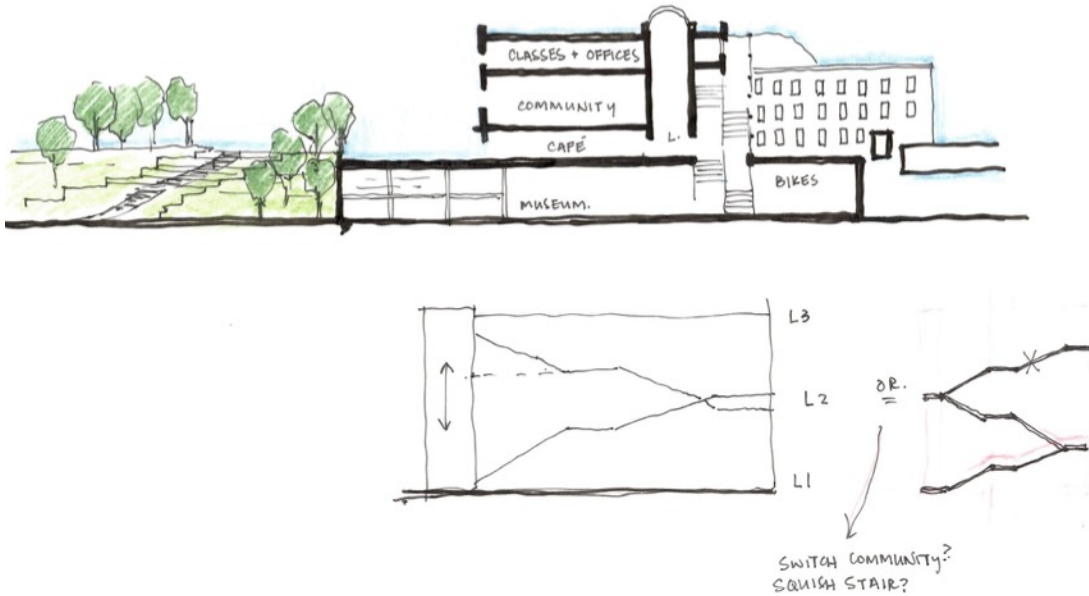


Figure 69 Section Studies

This section explores a tall atrium space that could help to organize the spaces and make the upper floors more visible from ground level.

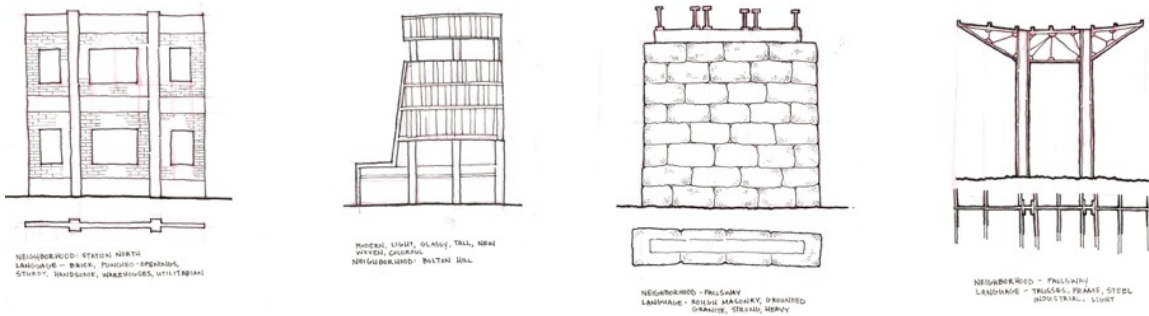


Figure 70 Neighborhood Architectural Languages

These sketches explore the existing architectural language of the neighborhood. Included are a mix of brick warehouses, glassy frame buildings, retaining walls and trestle bridge abutments, and steel-trussed railroad structures.

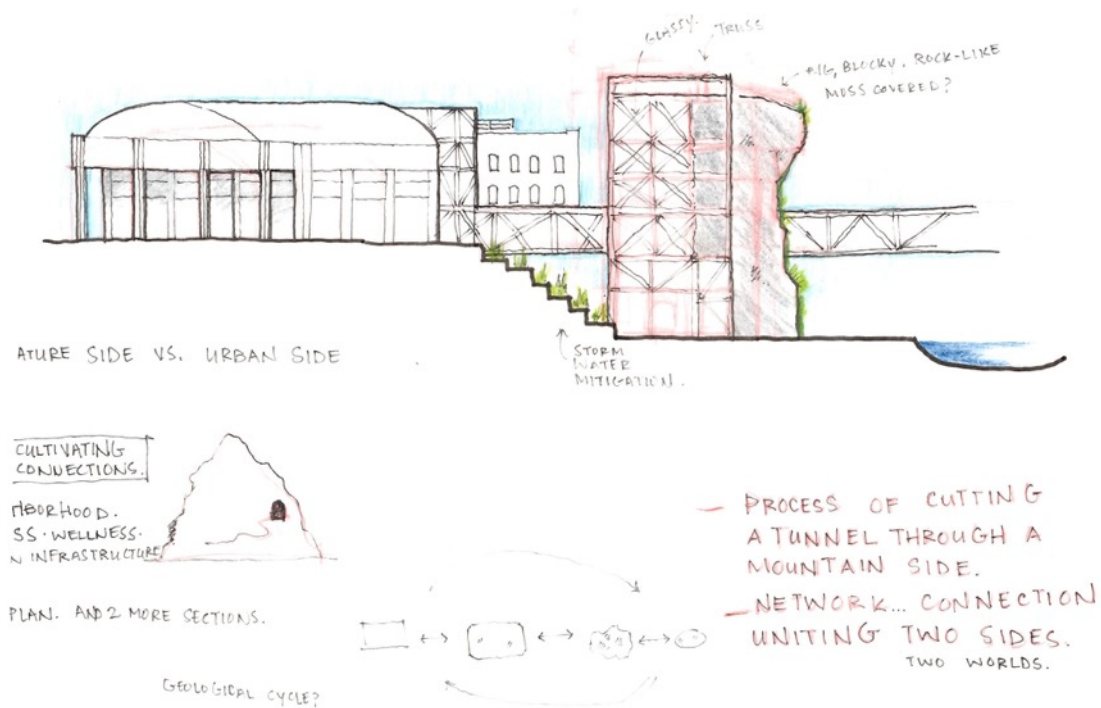
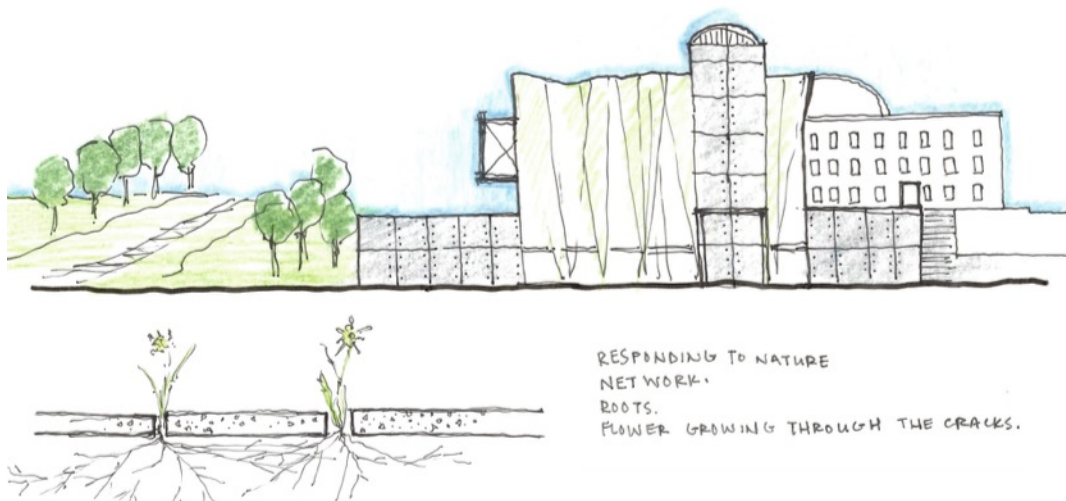


Figure 71 Sketch – Strategies for Unifying
 This sketch identifies an approach for dealing with the two different worlds of the urban (upper) neighborhood, and the “natural” (lower) neighborhood.

The neighborhood context was considered heavily during the development the building. Each iteration of plan, elevation and form was vetted against the existing community. The iterations were scrutinized for cohesiveness, functionality, directness, and fitness with the neighborhood. Each iteration was also challenged against the design principles set forth at the beginning of this chapter: discernable path, likeness, cohesiveness, and destination.



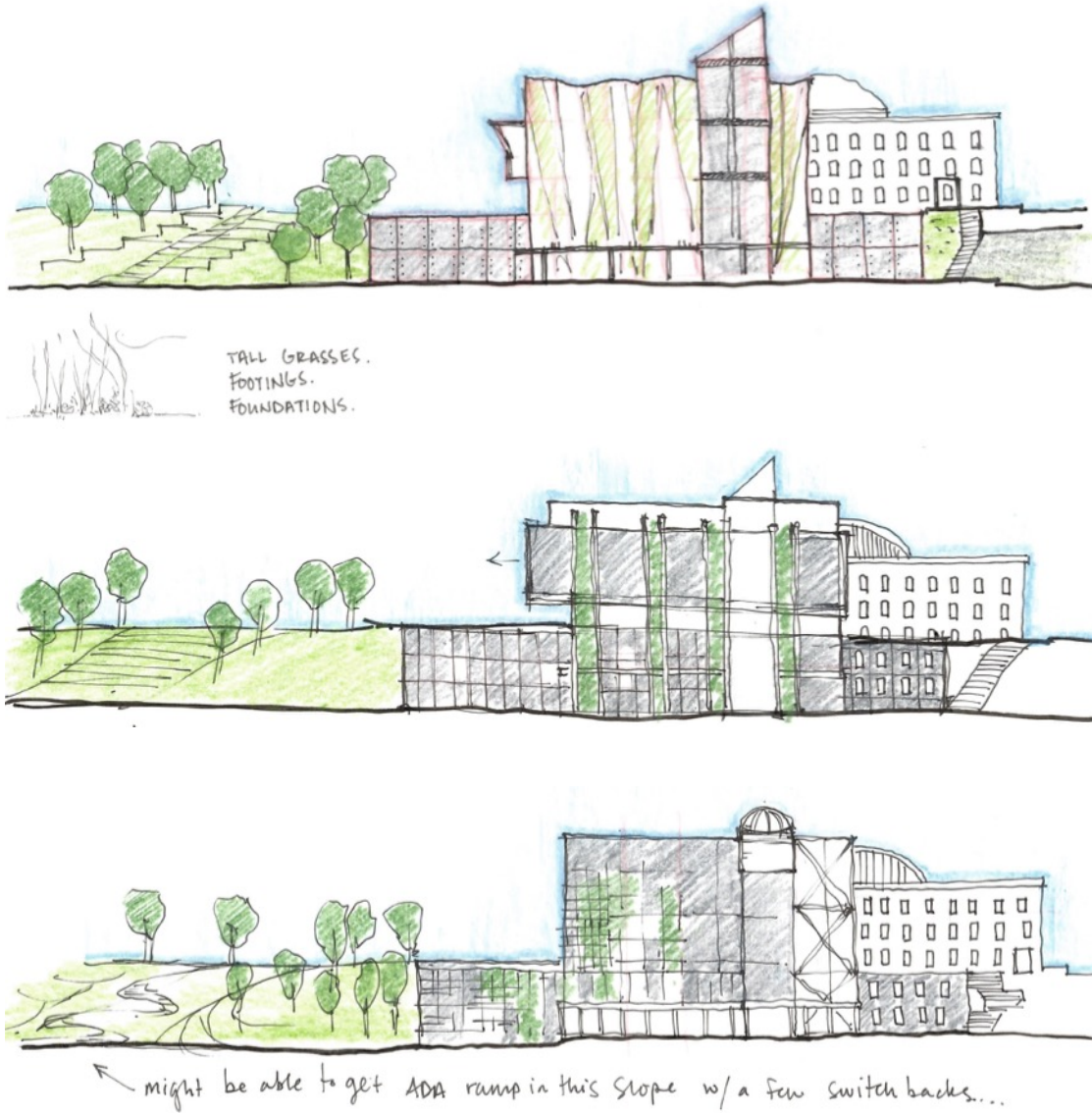


Figure 72 Façade Studies

Façade studies explored the relationships between old and new, base and top, natural landscapes and urban landscapes. They also explored placement of circulation, size and proportion.

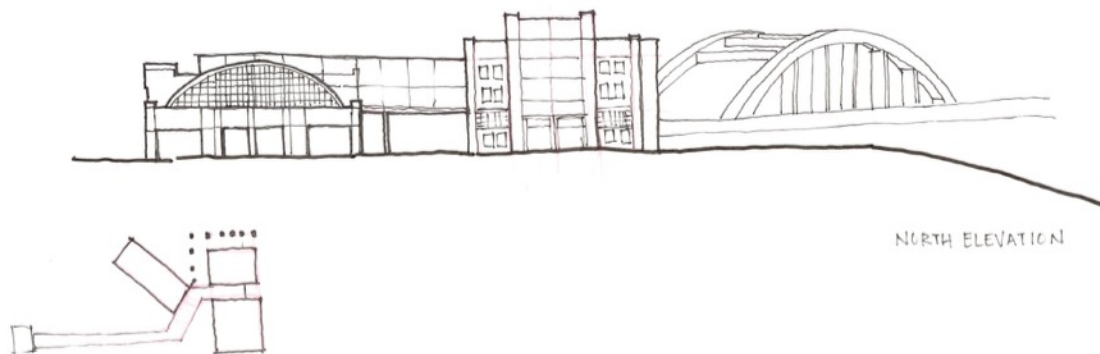
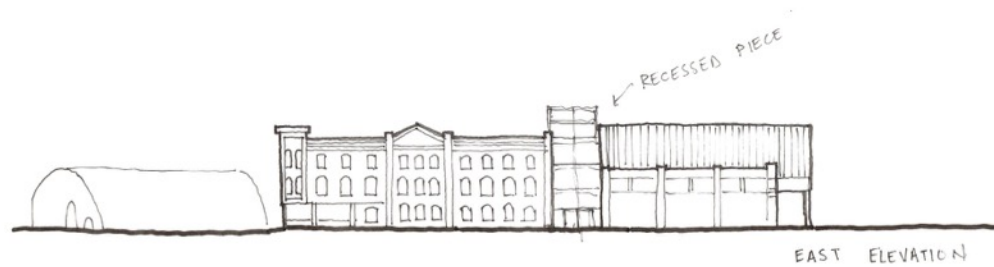
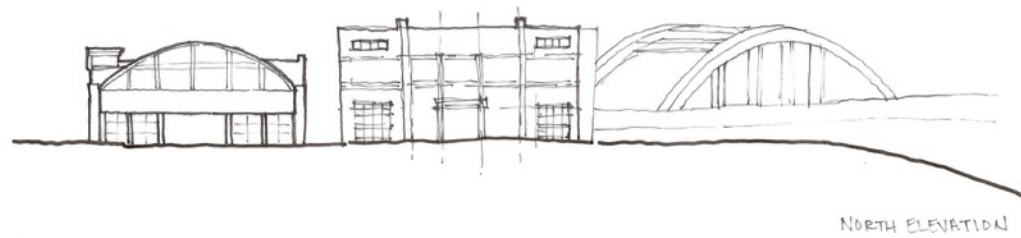
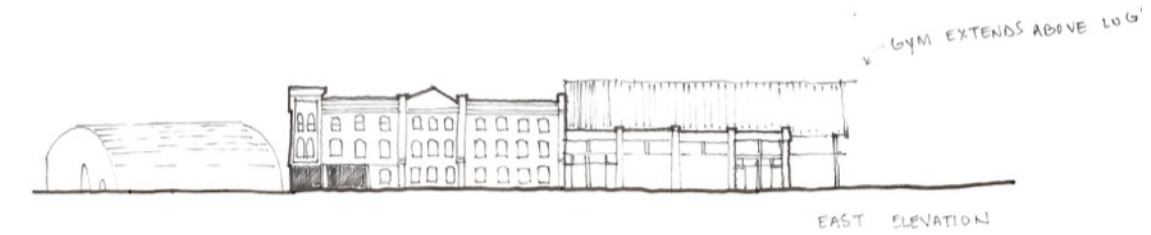


Figure 73 Elevation Studies

This set of elevation studies explores the relationship between old and new. The existing building could be outfitted with a gym with added structure. The new domed north façade would relate to the Howard Street Bridge in the backdrop.

Chapter 9: Design

Final Design

This thesis sought to develop an urban plan at the scale of the neighborhood that was *appropriate* to the existing conditions. The resulting design relies heavily on the neighborhood to help formulate a plan. An attempt to remove the authorship of the designer was made as a study of how the building might be shaped by community needs. Buildings do not often remain in the ownership of their designers; they are used and reused, adapted over time. Studying how the community would use the building early on in the process informed the design. This thesis explores how a community can be better connected by incorporating community feedback and context, rather than assuming a solution.



Figure 74 Aerial Rendering of the Site

This aerial rendering shows added trees, park landscapes, buildings (commercial and residential), bridges and bicycle lanes to help unify the neighborhood.



Figure 75 Keyed Site Plan

The site proposal is wide ranging and complex, and therefore requires a key with explanations.

The following information relates to the numbers on the site plan.

1. New Paths + Bridges to Connect East to West: To unite the two sides of North Avenue, more direct paths are added to navigate the physical obstacles (the Jones Falls, North Avenue Bridge, etc.)
2. Additional Bicycle Lanes: Expansion of the bicycle lane network in the city is proposed by reorganizing North Avenue and adding a protected 8' wide bicycle

line down the center of the street.

3. New Museum + Jones Falls Welcome Center: Museum program is integrated and additional gallery space added, as well as a Welcome Center and reading room for the Historic Jones Falls.
4. Terraced Rain Garden + Stair: A terraced rain garden will help with storm water mitigation and add green infrastructure to connect more residents with the popular Jones Falls Trail.
5. Additional Housing: The Baltimore Office of Planning is expecting this area to grow in population. Both student housing and general housing are needed to meet demand.
6. Renovated Building + Community Building: Existing building renovated to accept new program (medical, sports + fitness), and a new community building, plaza and cafe added.
7. Parking Garden: Existing parking lot updated with permeable paving, street trees, and a low wall to provide additional seating for seniors making their way to the new complex.
8. Additional Retail + Updated Path: Additional retail to service growing community. Renovated streets with added street trees, update sidewalks, bus shelters and crosswalks to encourage pedestrian traffic.

A section cut through the site helps to articulate the proposed solution. The new Jones Falls Welcome Center extends out into the landscape, and introduces visitors to the stream through a panoramic view of the west side of the site. Plans are considered from the dominant urban neighborhood located at North Avenue and North Howard Street. They are

numbered as such, with North Ave at “level 0” and Falls Road below at “level -2”.

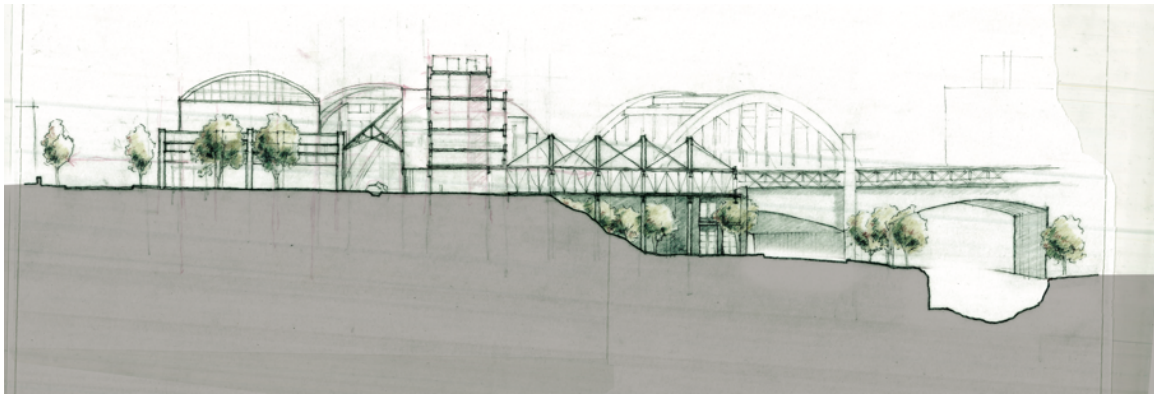


Figure 76 Keyed Site Plan

The site proposal is wide ranging and complex, and therefore requires a key with explanations.

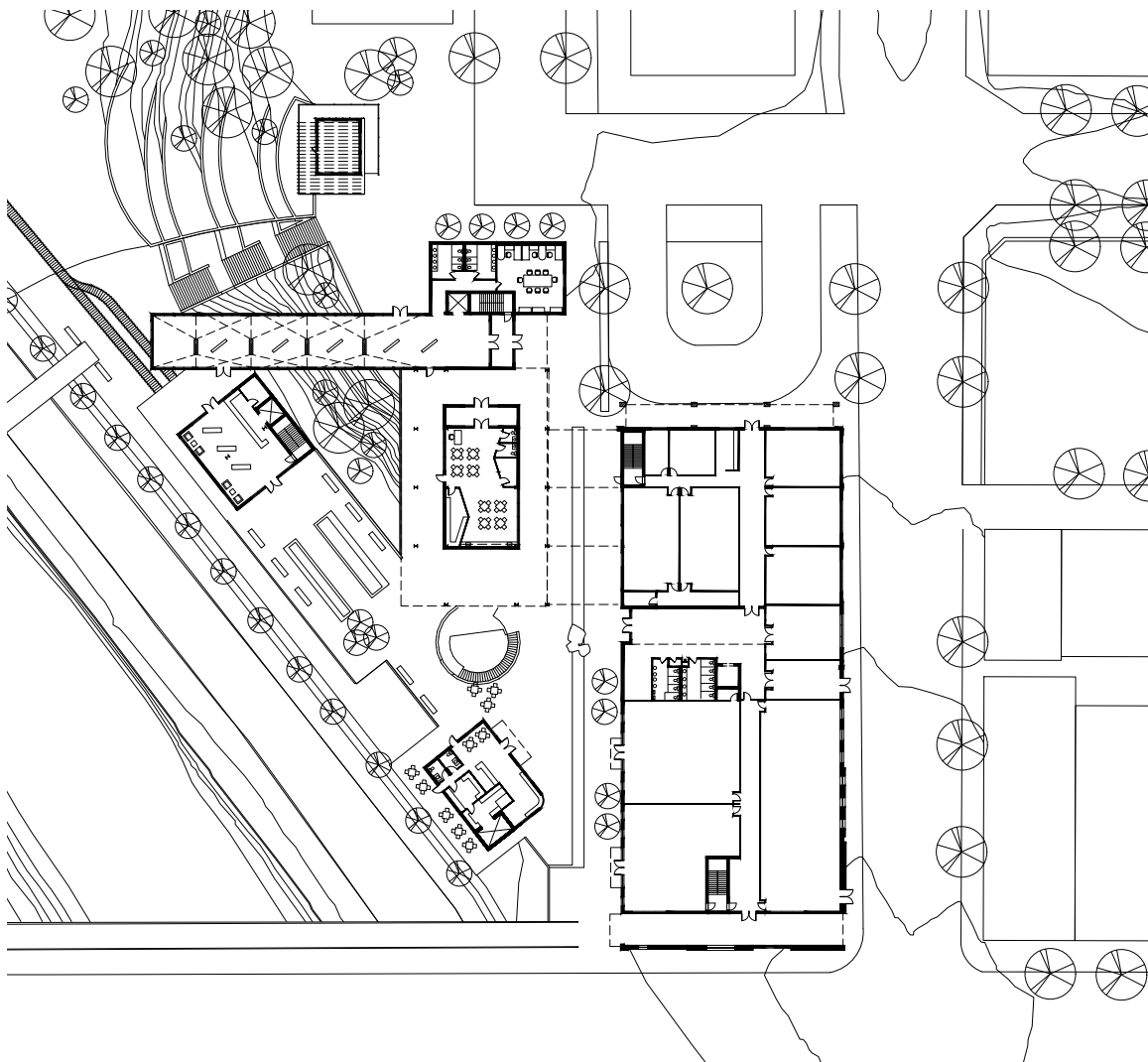
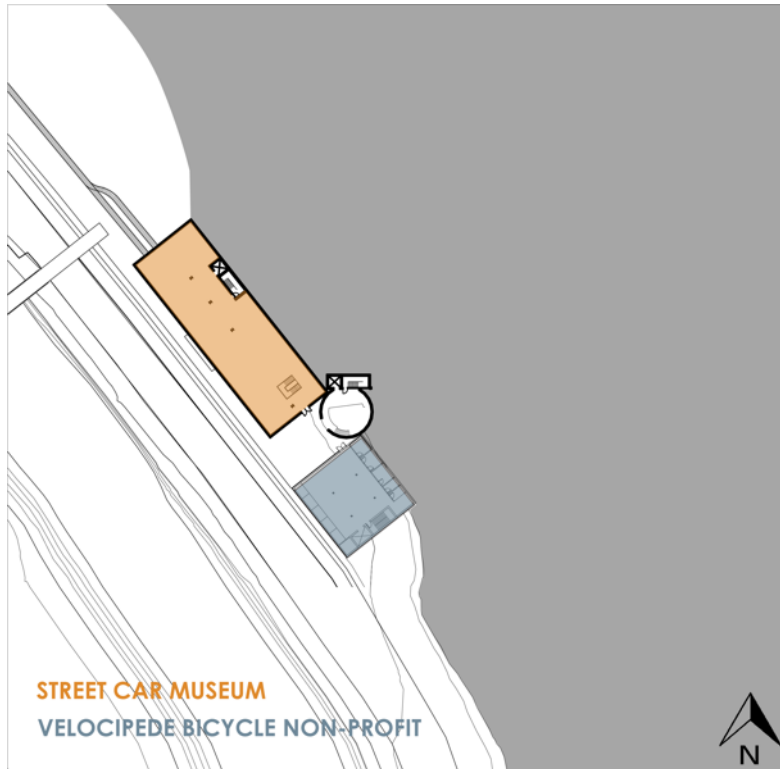


Figure 77 Ground Level Floor Plan

The ground level floor plan includes a variety of uses, and allows for several moments of connection between the

two neighborhoods (upper/urban and lower/natural).



*Figure 78 Floor Plan with Program – Level -2
This diagram shows the general layout of program within the larger site context.*



Figure 79 Floor Plan with Program – Level -1
This diagram shows the general layout of program within the larger site context.

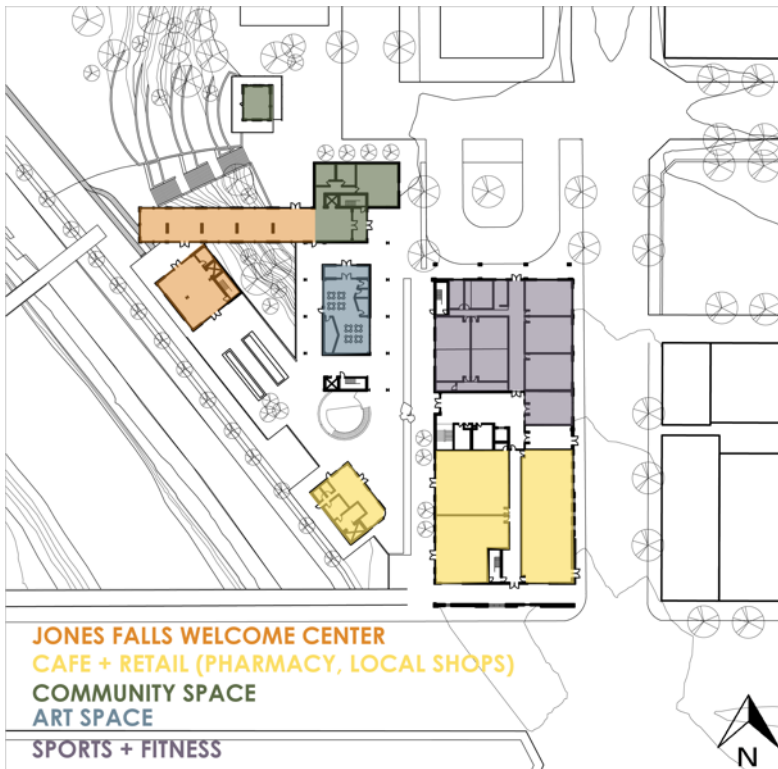


Figure 80 Floor Plan with Program – Level 0

This diagram shows the general layout of program within the larger site context.

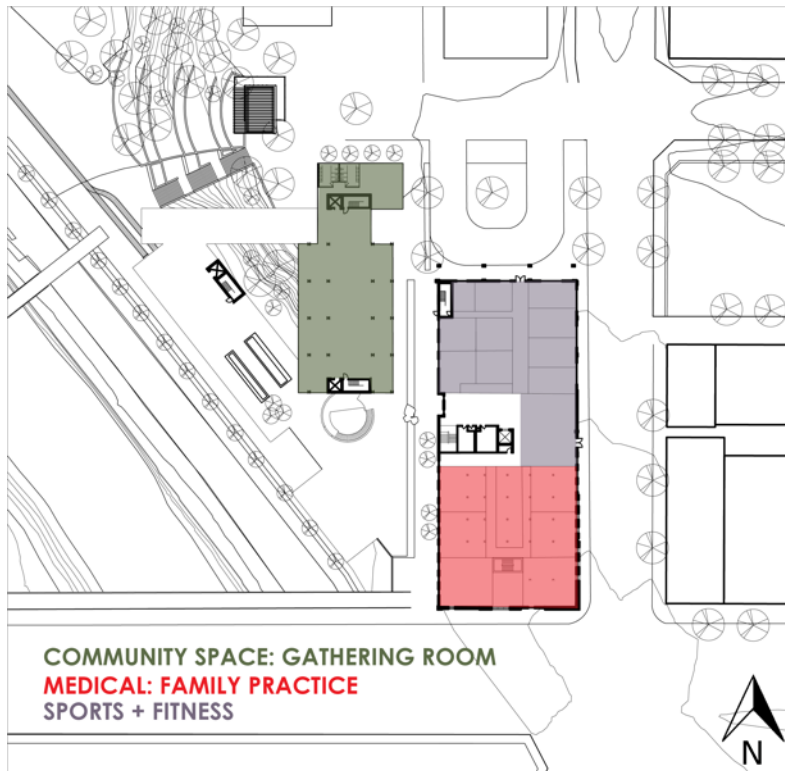


Figure 81 Floor Plan with Program – Level +1

This diagram shows the general layout of program within the larger site context.

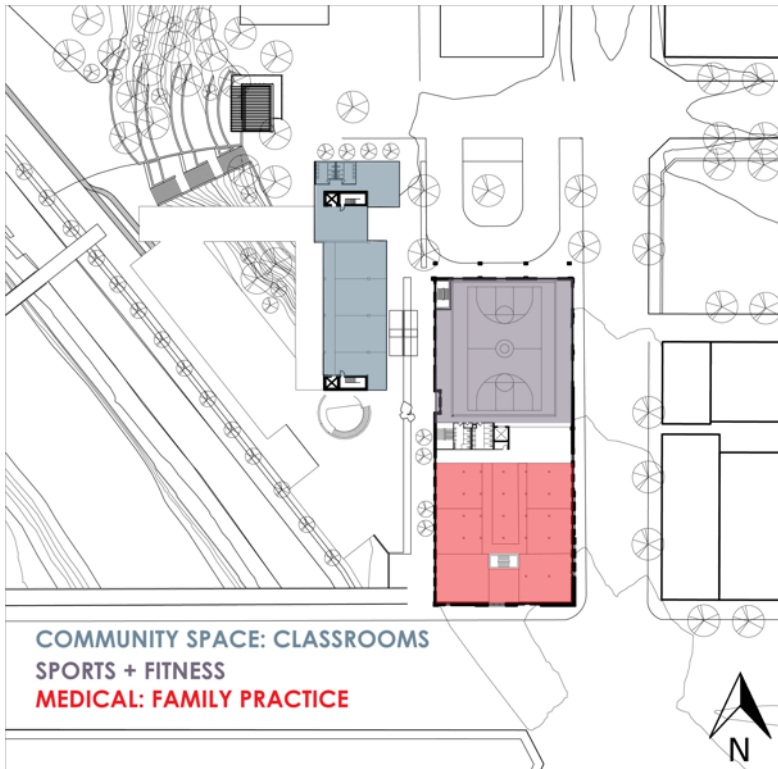


Figure 82 Floor Plan with Program – Level +2

This diagram shows the general layout of program within the larger site context.

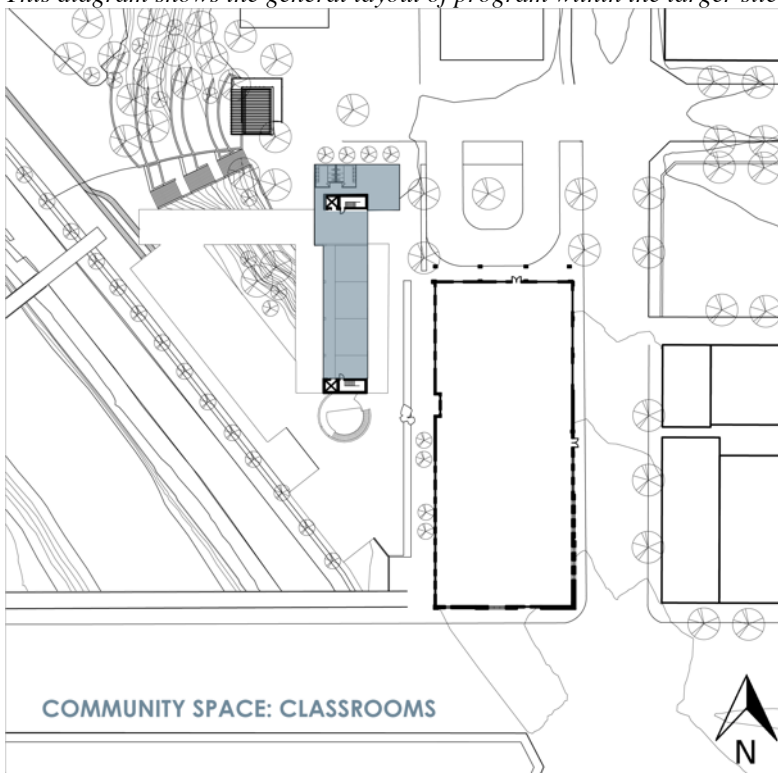


Figure 83 Floor Plan with Program – Level +1

This diagram shows the general layout of program within the larger site context.

Because this project responds heavily to community needs and input, the logical development of renderings and refinement came from a set of user paths and destinations. Each user route was mapped, and the final destinations were developed using this method. The timeframe of the project did not allow for every aspect to be fully developed, but the selected views have been vetted against the larger diagrammatic plan. Placement of structure and sizing of members is approximate, but accurately reflects the quality of spaces.



Figure 84 Path Map and View of Destination

This rendering shows the path of the School Kids and his and her destination – the art classroom – where after-school programs are held.

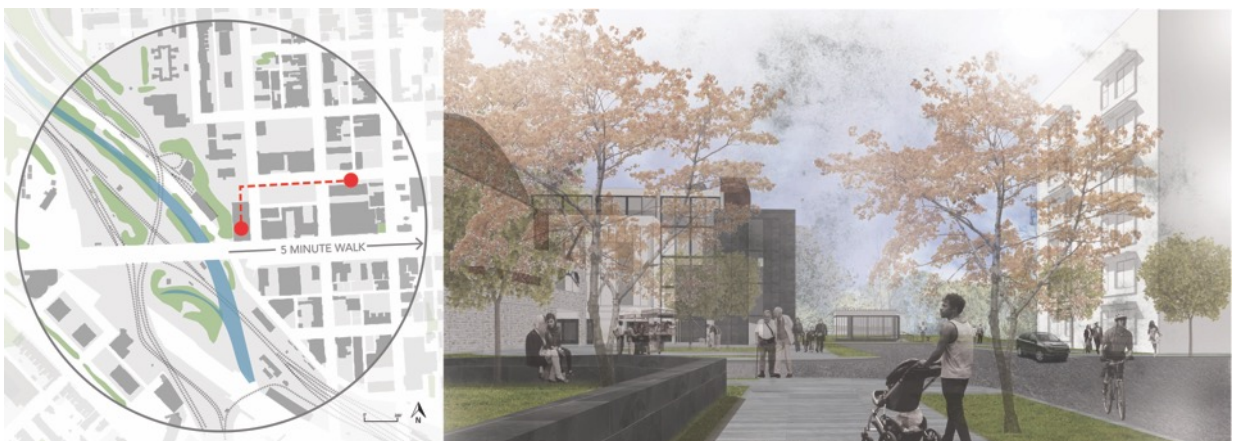


Figure 85 Path Map and View of Destination

This rendering shows the path of the Senior Citizens and his and her destination – the community building – where community meetings are held.



Figure 86 Path Map and View of Destination

This rendering shows the path of the MIIIC/A Students and his and her destination – the plaza – where each can get a cup of coffee in the café, volunteer in the bicycle non-profit, or teach an art class.



Figure 87 Path Map and View of Destination

This rendering shows the path of the Weekend Visitors and his and her destination – the Jones Falls Welcome Center and Streetcar Museum.



Figure 88 Path Map and View of Destination

This rendering shows the path of the Involved Resident and his and her destination – the terraced rain garden, pavilion and new apartment and community buildings.



Figure 89 Landscape Section

This section through the terraced rain garden shows the transition from the urban portion of the site at the top to the “natural” portion of the site at the bottom.

Appendices

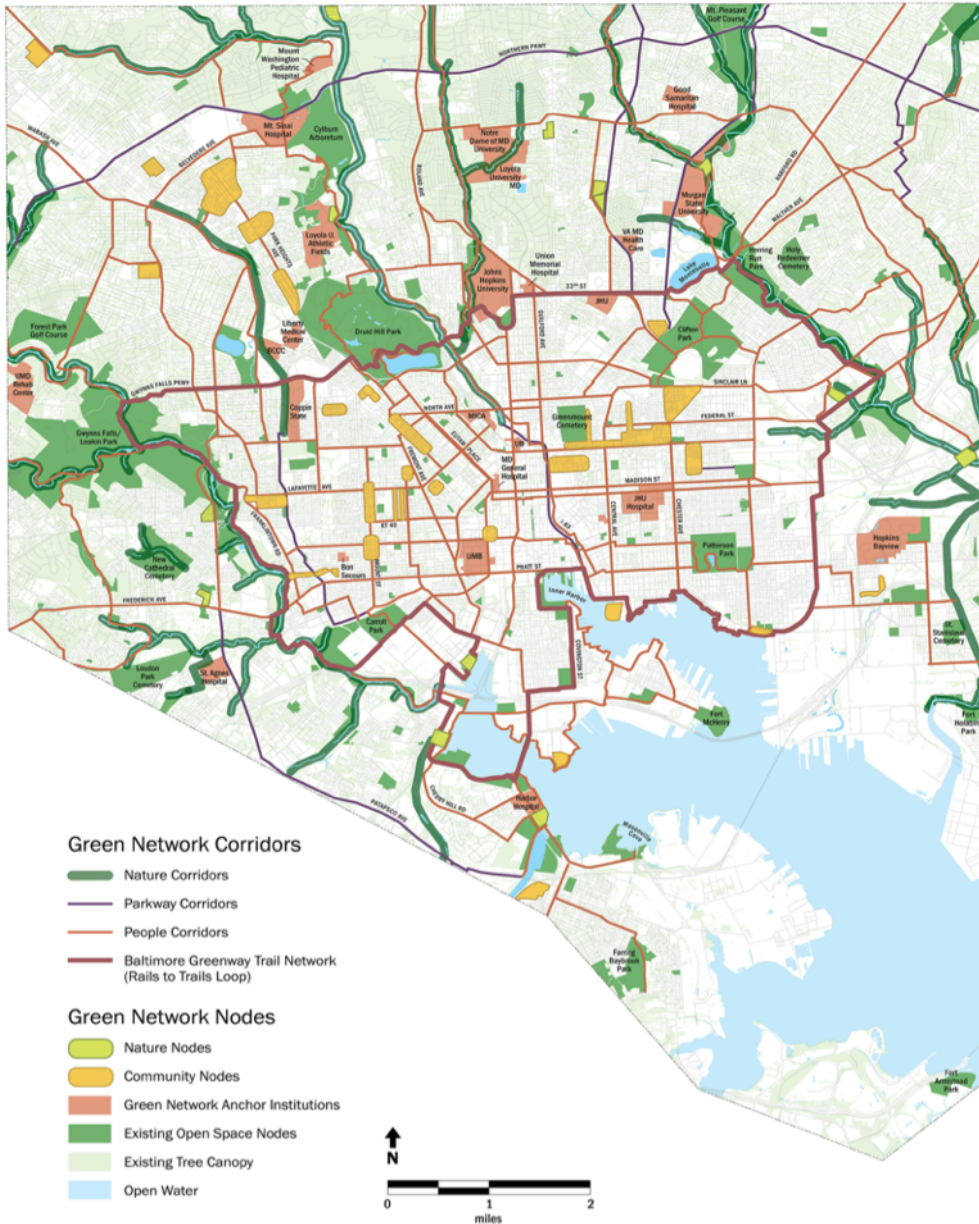
Appendix A: Baltimore Green Network Vision Plan

Baltimore City Green Network Vision Plan

MAY 2017



UPDATED DRAFT 5.18.2017





GREEN NETWORK PLAN

NODES & CORRIDORS



Nodes

Nodes are **neighborhood hubs** where people and nature meet. They are softer, greener, outdoor gathering spaces for recreation, resting, community events and improved habitat. They are **destinations**. Nodes are connected to one another by corridors.

There are three types of corridors in the Green Network Vision Plan:

Corridors

Corridors are **green, linear spaces** that provide safe, comfortable movement within and between neighborhoods for both humans and wildlife. They may be tree-lined streets providing shade and cooling; or streams, trails, blue alleys or boulevards. Corridors connect nodes.

There are three types of corridors in the Green Network Vision Plan:

Community Nodes



These nodes **provide spaces for recreation, greening, new open space, and other amenities** that support neighborhood social fabric and local real estate markets.

Community nodes might be areas for new development, community open space, or nature areas. They might have a spacious park or a new spot for urban farms or gardens that contribute to the local economy. The node might have a new playground, public art, or space for community events.

People Corridors

People-focused corridors will make **safe connections for residents who walk or bike** to schools, stores, parks, recreation centers, and more.



Corridors will include greening and elements such as street trees, median plantings, and bump-outs, improved sidewalks, protected bikeways, and improved and new trail connections.

Nature Nodes



Relatively scarce in a dense urban setting, Nature Nodes are **locations for enhancing and expanding habitat in forest patches, floodplain and wetlands** near the nature corridors. These nodes provide habitat "stepping stones" for wildlife as they move across the city.

The nature nodes attract important wildlife for pollination in wildflower gardens and woodland patches. They provide habitat for wildlife that help keep our ecosystems healthy. They help catch, slow and clean rainwater. These nodes are cooler, shadier spots for people to spot urban wildlife like birds, butterflies, and fish.

Nature Corridors

Our **stream valleys**--the Jones Falls, Herring Run, and Gwynns Falls streams--define Baltimore's landscape. These important Nature Corridors need to be preserved and enhanced, in order to support the health of our streams, Inner Harbor, the lower Patapsco River, and Chesapeake Bay. In some cases, these are the last semi-intact natural areas in the city.



The Nature Corridors also **provide habitat for important native wildlife**. We need to preserve and expand these corridors with increased native tree canopy and understory plantings, management of invasive species, and stream channel restoration

Existing Open Space and Anchor Institution Nodes



These nodes include **city parks, universities, cemeteries, hospitals, the Inner Harbor promenade**. These nodes are used for social gatherings, play, recreation, and habitat. The City and private landholders can manage their sites for ecological as well as educational stewardship and healthy living. These are also important catalysts for economic investment and revitalization.

These existing nodes are important amenities for recreation, respite, habitat, and water quality, as well as community health and wellness.

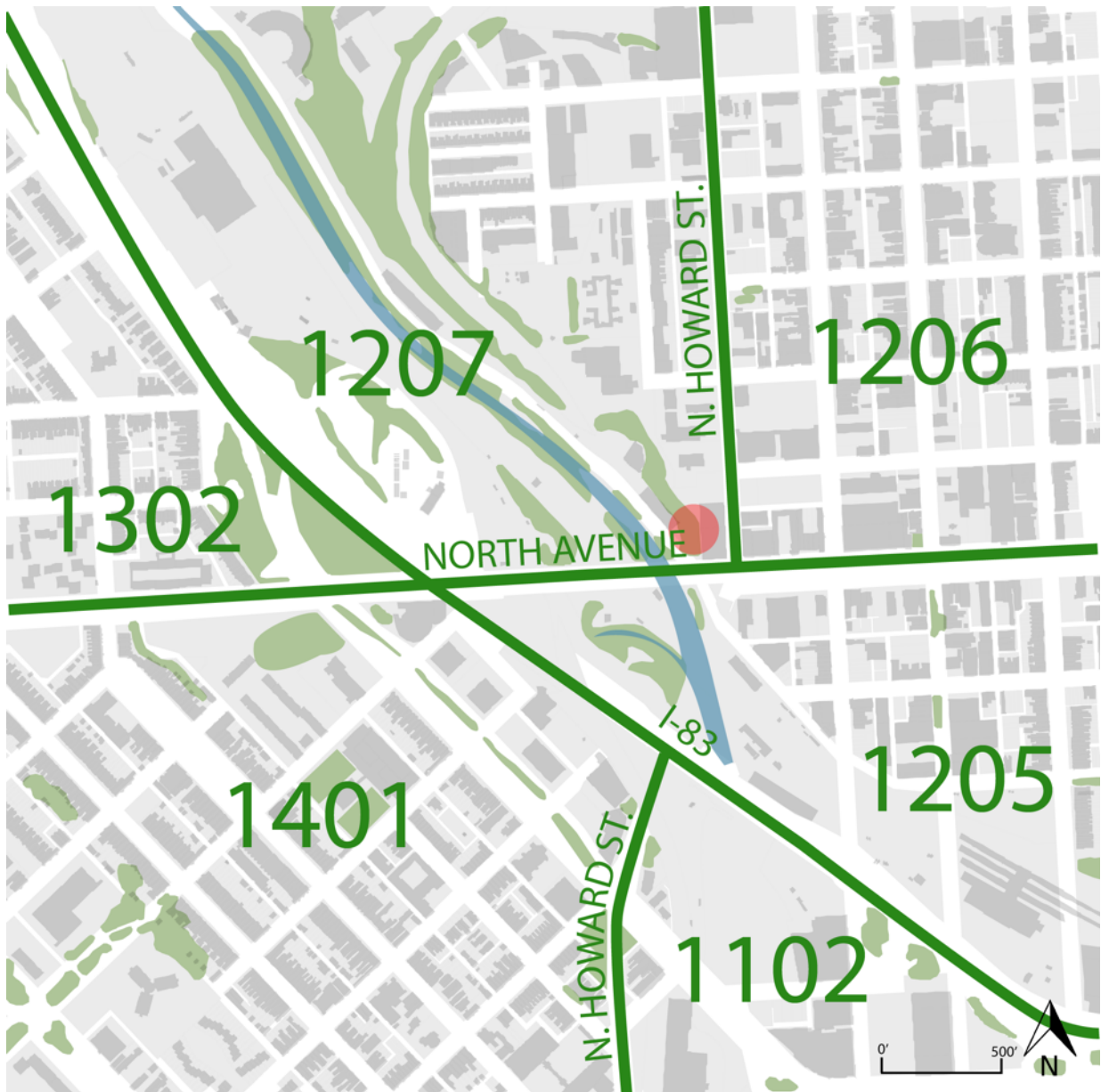
Parkway Corridors

These busy vehicular corridors include **parkways and boulevards, as well as streets that align with historic streams**.

The plan recommends that these important connections to the network include stormwater management and increased tree canopy, as well as wildflower and shrub plantings in medians and street edges.

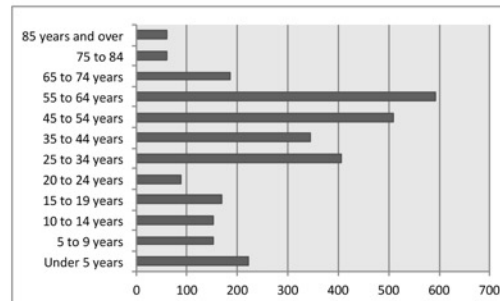
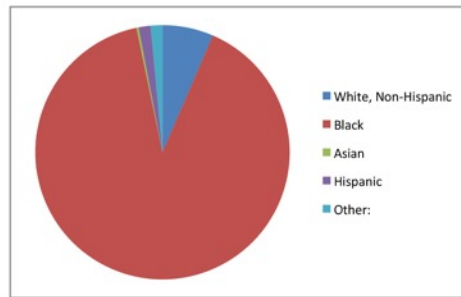


Appendix B: Census Tract Data



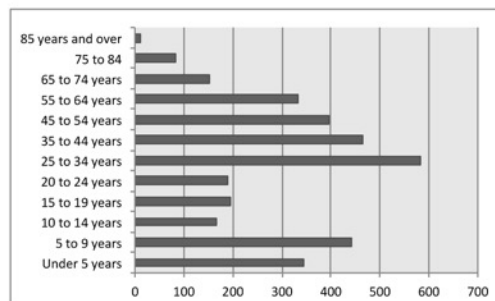
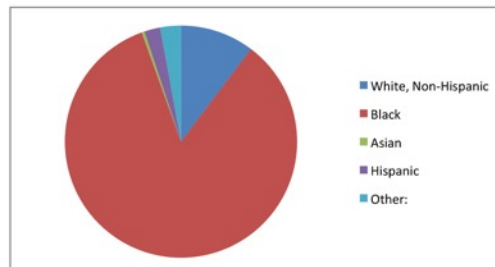
Census tract areas used for area analysis.

TRACT: 130100	
Population	2,613
House Units	1,784
Population Density / Acre:	34
Median Household Income:	\$27,426
Median House Price:	\$182,300
Land Area (mile):	0.12 sq mi
Land Area (acre):	76.8 acre
White, Non-Hispanic	6.50%
Black	90.20%
Asian	0.30%
Hispanic	1.50%
Other:	1.50%
Total Households	1508
Average Household Size	1.94
1 Person Households	54%
2 or More Person Households	46%
Family Households (Families)	582
Average Family Size	3.13
Married-Couple Family	16%
Nonfamily Households	84%
Under 5 years	222
5 to 9 years	151
10 to 14 years	153
15 to 19 years	168
20 to 24 years	87
25 to 34 years	405
35 to 44 years	346
45 to 54 years	510
55 to 64 years	592
65 to 74 years	187
75 to 84	61
85 years and over	59



Dept. of Planning, Maryland State Data Center: http://www.mdp.state.md.us/msdc/CNTY_MENU/baci.shtml

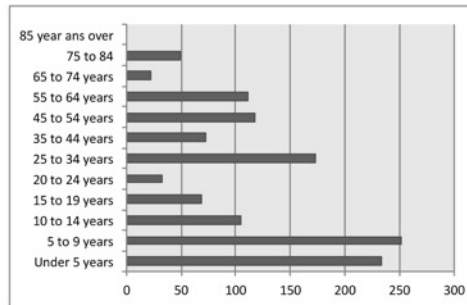
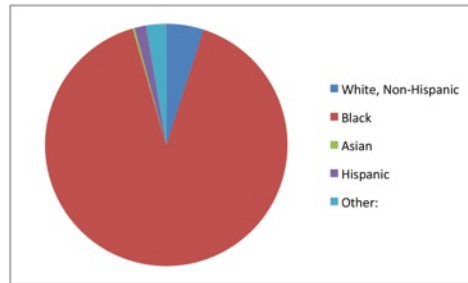
TRACT: 130200	
Population	2,775
House Units	1,573
Population Density / Acre:	31
Median Household Income:	\$37,708
Median House Price:	\$309,400
Land Area (mile):	.14 sq. mi.
Land Area (acre):	89.6 acre
White, Non-Hispanic	10.30%
Black	84.20%
Asian	0.40%
Hispanic	2.20%
Other:	2.90%
Total Households	1,253
Average Household Size	2.67
1 Person Households	37%
2 or More Person Households	63%
Family Households (Families)	550
Average Family Size	3.3
Married-Couple Family	17%
Nonfamily Households	83%
Under 5 years	345
5 to 9 years	441
10 to 14 years	165
15 to 19 years	196
20 to 24 years	189
25 to 34 years	582
35 to 44 years	465
45 to 54 years	395
55 to 64 years	334
65 to 74 years	151
75 to 84	82
85 years and over	12



Dept. of Planning, Maryland State Data Center: http://www.mdp.state.md.us/msdc/CNTY_MENU/baci.shtml

TRACT: 130300

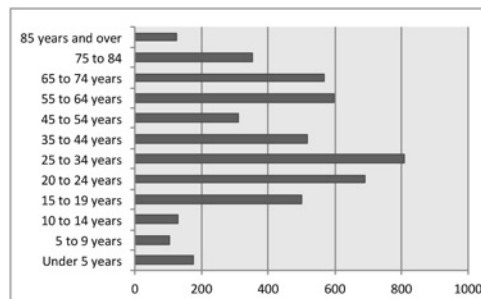
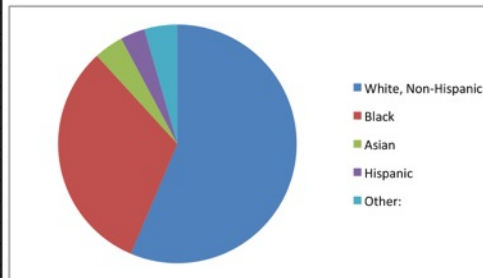
Population	979
House Units	385
Population Density / Acre:	52
Median Household Income:	\$21,250
Median House Price:	\$472,700
Land Area (mile):	0.03 sq m
Land Area (acre):	19.2 acre
White, Non-Hispanic	5.00%
Black	90.50%
Asian	0.30%
Hispanic	1.50%
Other:	2.70%
Total Households	330
Average Household Size	2.97
1 Person Households	23%
2 or More Person Households	77%
Family Households (Families)	228
Average Family Size	3.57
Married-Couple Family	14%
Nonfamily Households	86%
Under 5 years	233
5 to 9 years	251
10 to 14 years	104
15 to 19 years	69
20 to 24 years	32
25 to 34 years	173
35 to 44 years	72
45 to 54 years	118
55 to 64 years	111
65 to 74 years	22
75 to 84	49
85 years and over	0



Dept. of Planning, Maryland State Data Center: http://www.mdp.state.md.us/msdc/CNTY_MENU/baci.shtml

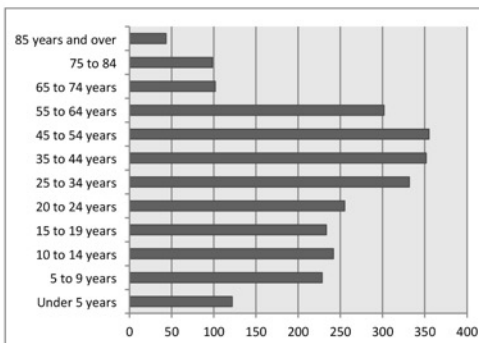
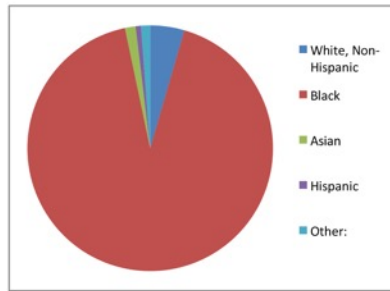
TRACT: 140100

Population	4974
House Units	2883
Population Density / Acre:	36
Median Household Income:	\$41,365
Median House Price:	\$395,900
Land Area (mile):	0.22 sq. mi
Land Area (acre):	140.2 acre
White, Non-Hispanic	56.40%
Black	31.80%
Asian	4.00%
Hispanic	3.30%
Other:	4.50%
Total Households	2371
Average Household Size	1.8
1 Person Households	54%
2 or More Person Households	46%
Family Households (Families)	699
Average Family Size	2.89
Married-Couple Family	30%
Nonfamily Households	70%
Under 5 years	177
5 to 9 years	103
10 to 14 years	131
15 to 19 years	500
20 to 24 years	689
25 to 34 years	806
35 to 44 years	518
45 to 54 years	310
55 to 64 years	597
65 to 74 years	568
75 to 84	354
85 years and over	123



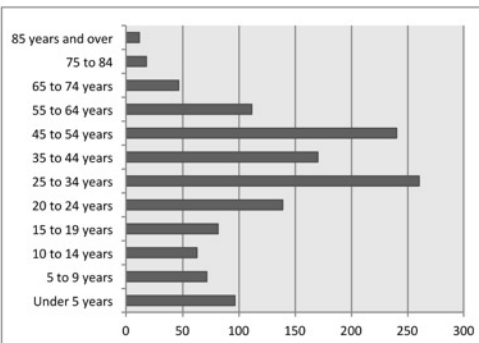
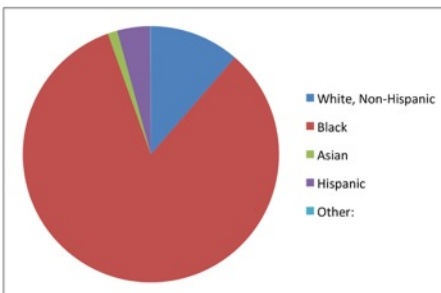
Dept. of Planning, Maryland State Data Center: http://www.mdp.state.md.us/msdc/CNTY_MENU/baci.shtml

TRACT: 140300	
Population	2333
House Units	1583
Population Density / Acre:	24
Median Household Income:	\$22,612
Median House Price:	\$99,200
Land Area (mile):	0.15 sq. mi.
Land Area (acre):	96 acre
White, Non-Hispanic	4.50%
Black	92.20%
Asian	1.40%
Hispanic	0.70%
Other:	1.20%
Total Households	1013
Average Household Size	2.59
1 Person Households	43%
2 or More Person Households	57%
Family Households (Families)	490
Average Family Size	4
Married-Couple Family	16%
Nonfamily Households	84%
Under 5 years	121
5 to 9 years	228
10 to 14 years	242
15 to 19 years	233
20 to 24 years	254
25 to 34 years	332
35 to 44 years	352
45 to 54 years	355
55 to 64 years	302
65 to 74 years	102
75 to 84	98
85 years and over	44



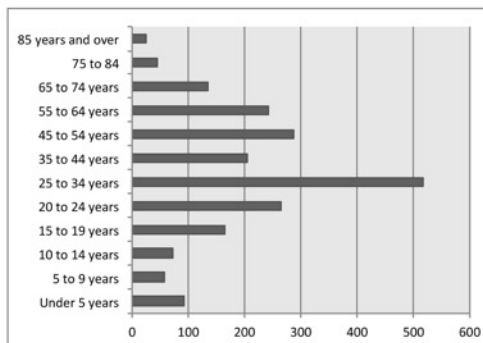
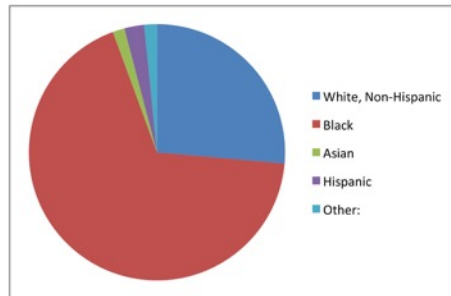
Dept. of Planning, Maryland State Data Center: http://www.mdp.state.md.us/msdc/CNTY_MENU/baci.shtml

TRACT: 120400	
Population	1313
House Units	955
Population Density / Acre:	18
Median Household Income:	\$31,928
Median House Price:	\$173,900
Land Area (mile):	0.11
Land Area (acre):	70.4
White, Non-Hispanic	12.30%
Black	89.90%
Asian	1.30%
Hispanic	4.50%
Other:	0.10%
Total Households	568
Average Household Size	2.88
1 Person Households	30%
2 or More Person Households	70%
Family Households (Families)	324
Average Family Size	3.81
Married-Couple Family	18%
Nonfamily Households	43%
Under 5 years	97
5 to 9 years	72
10 to 14 years	63
15 to 19 years	82
20 to 24 years	139
25 to 34 years	260
35 to 44 years	170
45 to 54 years	241
55 to 64 years	112
65 to 74 years	47
75 to 84	18
85 years and over	12



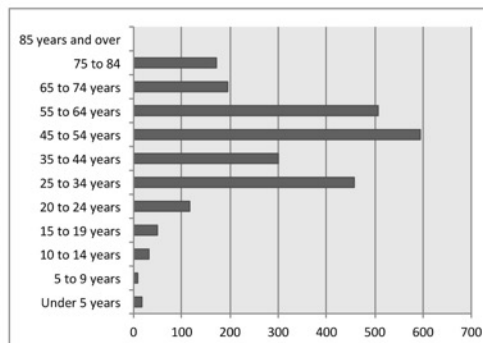
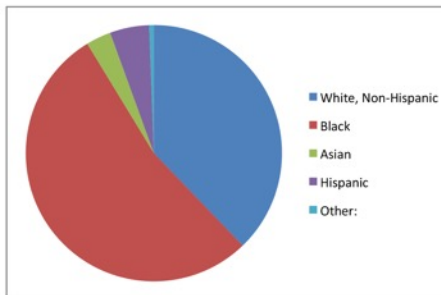
Dept. of Planning, Maryland State Data Center: http://www.mdp.state.md.us/msdc/CNTY_MENU/baci.shtml

TRACT: 120500	
Population	1751
House Units	1171
Population Density / Acre:	14
Median Household Income:	\$31,928
Median House Price:	\$173,900
Land Area (mile):	0.20 sq mi
Land Area (acre):	128 acre
White, Non-Hispanic	26.40%
Black	68.00%
Asian	1.50%
Hispanic	2.50%
Other:	1.60%
Total Households	911
Average Household Size	2.23
1 Person Households	43%
2 or More Person Households	57%
Family Households (Families)	310
Average Family Size	3.46
Married-Couple Family	35%
Nonfamily Households	65%
Under 5 years	92
5 to 9 years	58
10 to 14 years	73
15 to 19 years	164
20 to 24 years	265
25 to 34 years	517
35 to 44 years	204
45 to 54 years	288
55 to 64 years	242
65 to 74 years	136
75 to 84	46
85 years and over	25



Dept. of Planning, Maryland State Data Center: http://www.mdp.state.md.us/msdc/CNTY_MENU/baci.shtml

TRACT: 120600	
Population	3269
House Units	2037
Population Density / Acre:	29
Median Household Income:	\$13,351
Median House Price:	\$294,700
Land Area (mile):	.19 sq. mi.
Land Area (acre):	121.6 acre
White, Non-Hispanic	38.20%
Black	54.00%
Asian	3.20%
Hispanic	5.00%
Other:	0.60%
Total Households	1650
Average Household Size	1.33
1 Person Households	76%
2 or More Person Households	24%
Family Households (Families)	246
Average Family Size	2.45
Married-Couple Family	10%
Nonfamily Households	85%
Under 5 years	16
5 to 9 years	8
10 to 14 years	31
15 to 19 years	48
20 to 24 years	115
25 to 34 years	456
35 to 44 years	300
45 to 54 years	594
55 to 64 years	507
65 to 74 years	196
75 to 84	173
85 years and over	



Dept. of Planning, Maryland State Data Center: http://www.mdp.state.md.us/msdc/CNTY_MENU/baci.shtml

Appendix C: Neighborhood Land Use, Transportation and Access



Figure 90 Existing Land Use and Massing



Figure 91 Proposed Land Use and Massing



Figure 92 Existing Transportation Networks

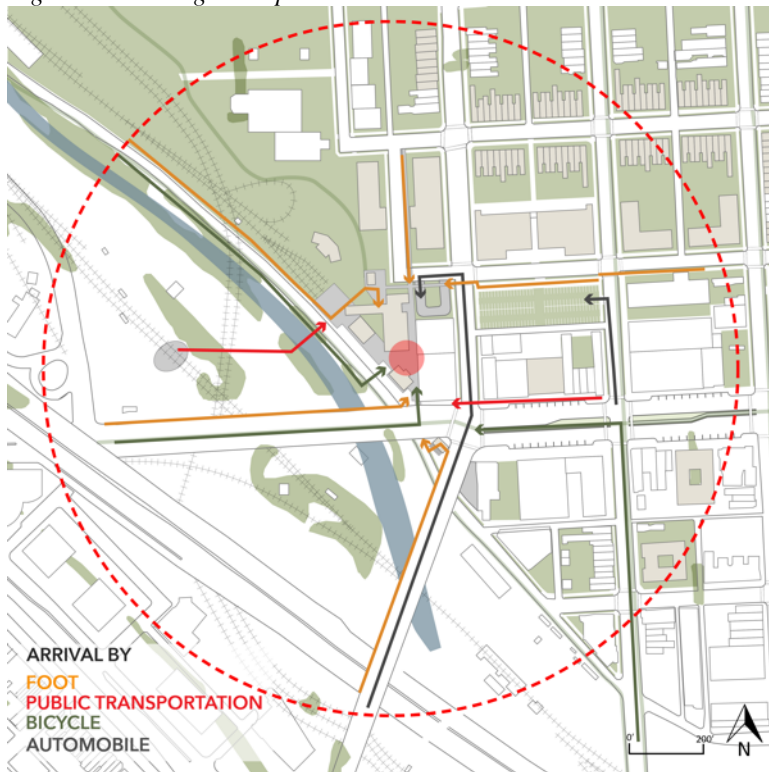


Figure 93 Proposed Access Diagram



Figure 94 Existing Neighborhood Amenities

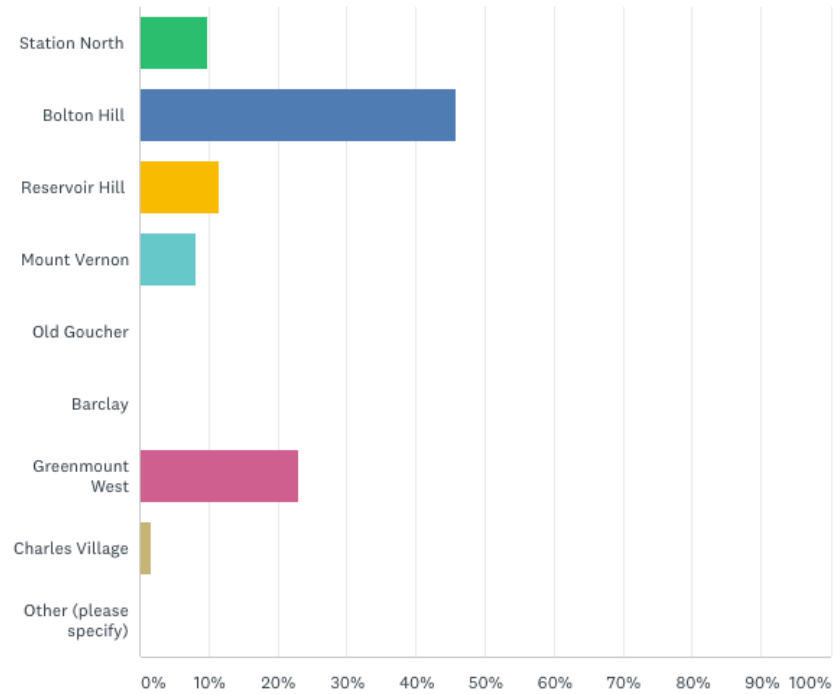


Figure 95 Large Land Use Map

Appendix D: Survey Responses

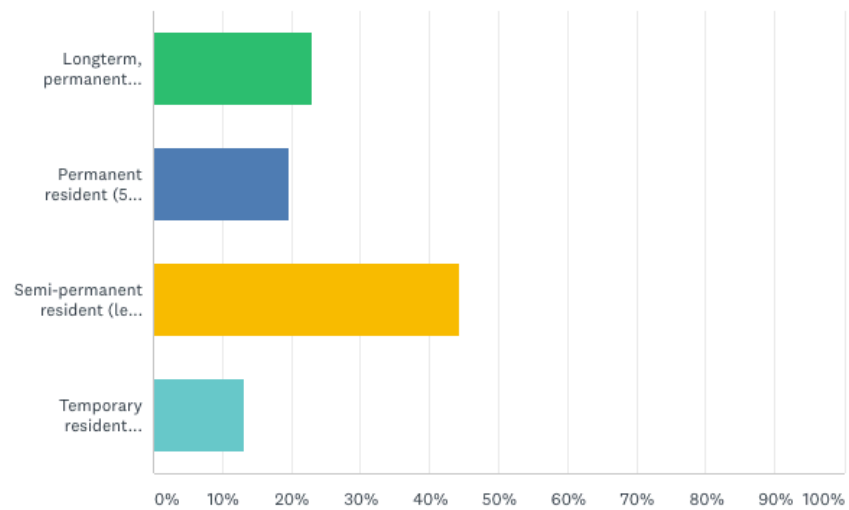
Where do you live?

Answered: 61 Skipped: 0



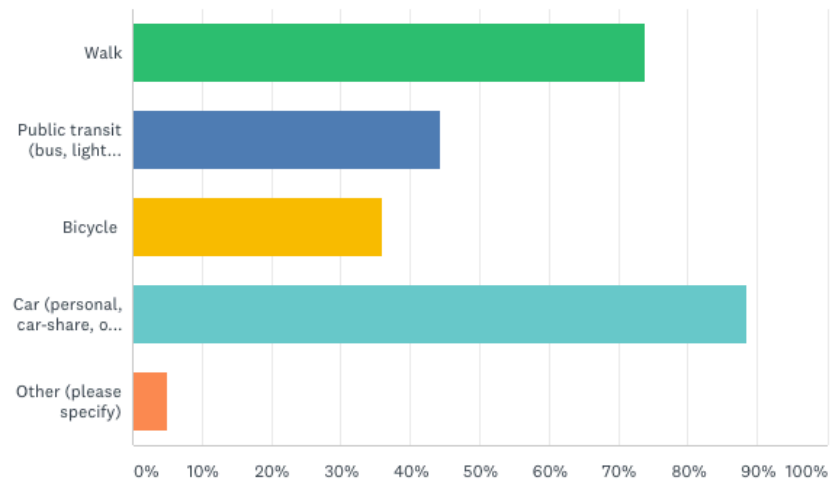
Which of the following best describes you?

Answered: 61 Skipped: 0



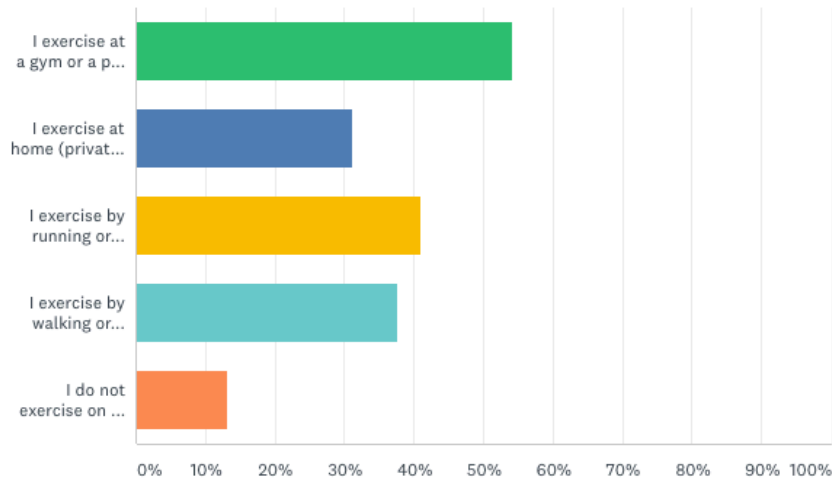
How do you get from place to place?

Answered: 61 Skipped: 0



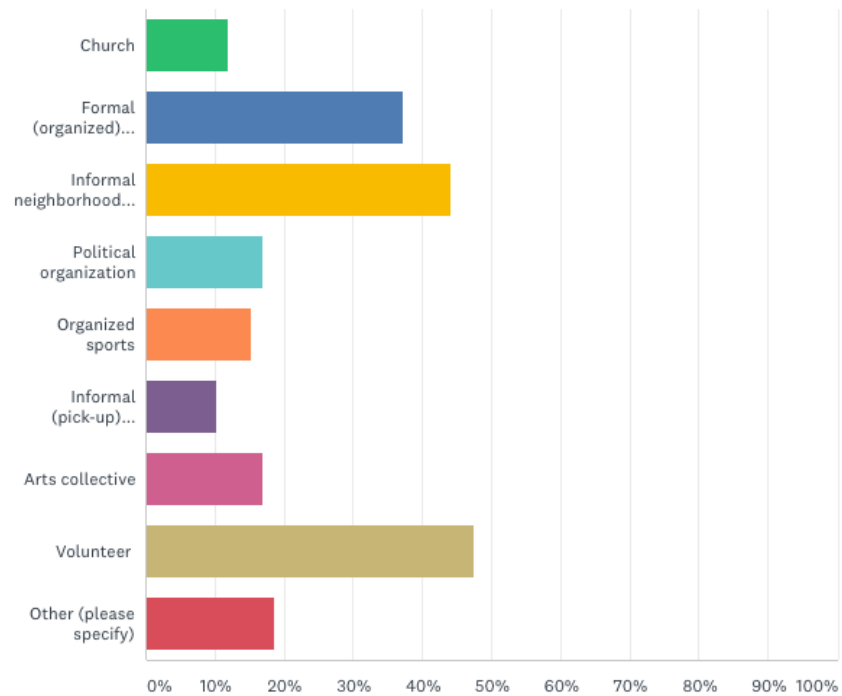
Where do you exercise?

Answered: 61 Skipped: 0



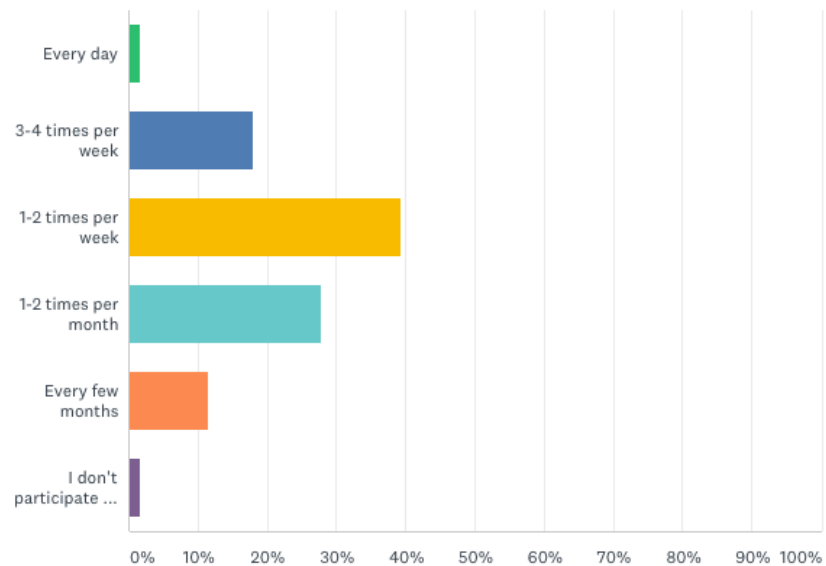
What social activities do you participate in?

Answered: 59 Skipped: 2



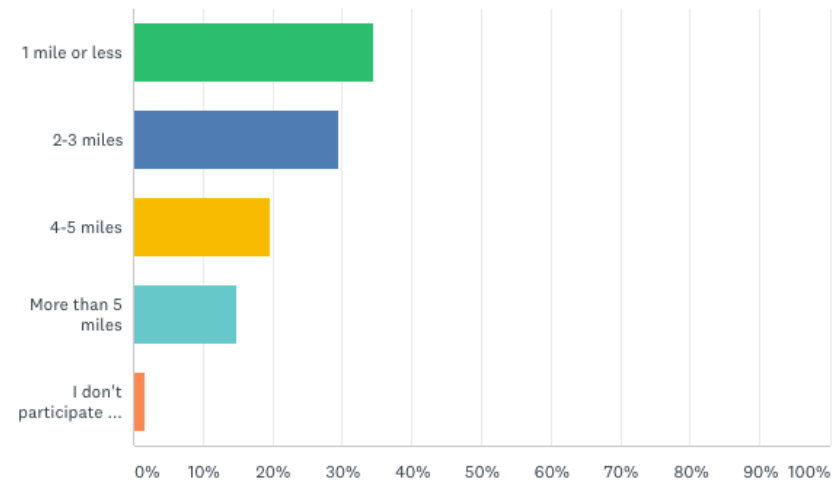
How often do you participate in social events?

Answered: 61 Skipped: 0



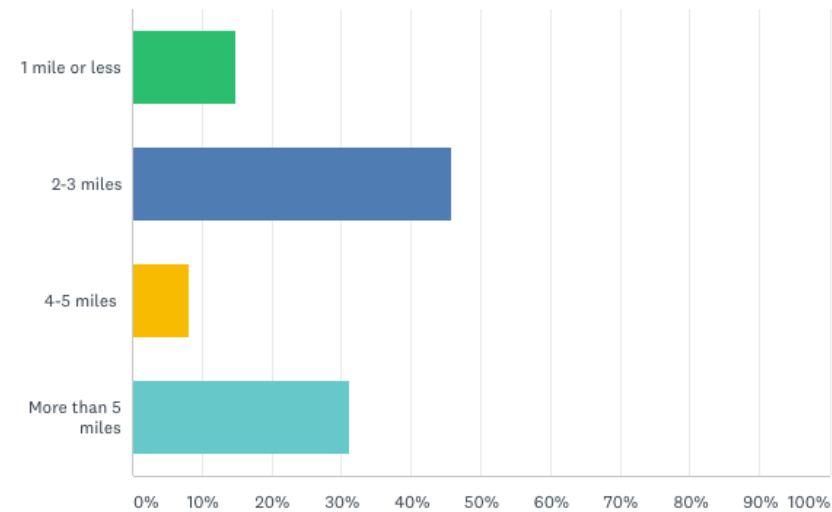
How far do you travel for social events?

Answered: 61 Skipped: 0



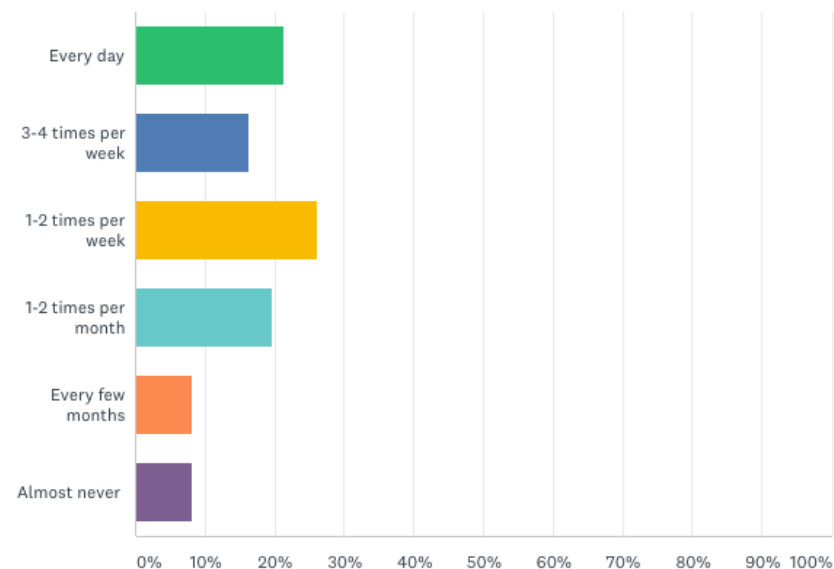
How far do you travel for medical care?

Answered: 61 Skipped: 0



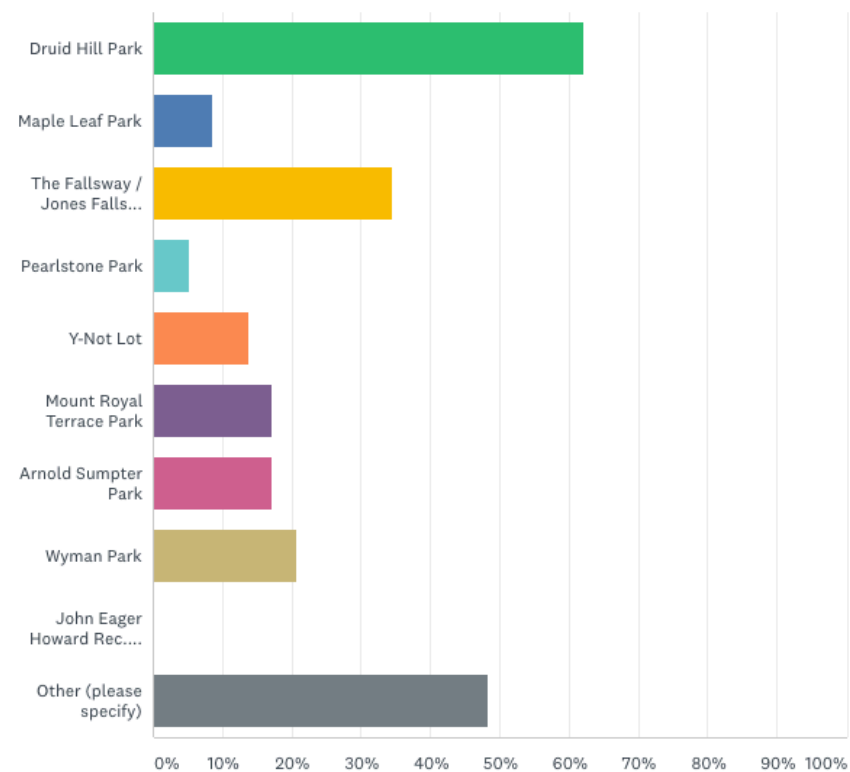
How often do you visit a local park?

Answered: 61 Skipped: 0



Which area parks / amenities do you visit?

Answered: 58 Skipped: 3



Appendix E: List of Precedents Used

Parks / Urban Landscape Designs:

- *Chain of Lakes*, Minneapolis, Minnesota. Horace W. S. Cleveland (1880s)
- *Emerald Necklace*, Boston, Massachusetts. Frederick Law Olmsted (1880s)
- *The High Line*, New York, NY. Diller Scofidio + Renfro, James Corner Field Operations and Piet Oudolf (2012 – ongoing)
- *Parc de la Villette*, Paris, France. Bernard Tschumi (completed 1987)

Buildings:

- *Carpenter Center*, Cambridge Massachusetts. Le Corbusier (1962)
- *Neue Staatsgalerie*, Stuttgart, Germany. James Stirling (1984)
- *Riverside Park Pavilion*, Kunshun, China. Vector Architects (2013)
- *Rosenkranz Hall*, New Haven, Connecticut. Koetter Kim (2009)
- *Sainsbury Laboratory*, Cambridge, England. Stanton Williams (2010)

Bibliography

Anderson, Stanford, and Institute for Architecture and Urban Studies. *On Streets*. Cambridge, Mass.: MIT Press, 1978.

"Healthy Baltimore 2015, Interim Status Report," Baltimore City Health Department. Accessed June 16, 2016. http://health.baltimorecity.gov/sites/default/files/HealthyBaltimore2015_May2016Update_web.pdf

Breckenridge, Kenneth Stone. "Elderly and disabled residents in J. Van Story Branch public housing live among bed-bugs and fight for basic repairs." Citypaper.com. October 25, 2016. Accessed September 30, 2017. <http://www.citypaper.com/news/features/bcp-102616-feature-van-story-housing-20161026-story.html>.

Brower, Sidney. *Good neighborhoods: A study of in-town & suburban residential environments*. Westport, Conn.: Praeger, 1996.

Brower, Sidney. *Neighbors and neighborhoods: elements of successful community design*. Chicago, IL: APA Planners Press, 2011.

Collarte, Natalia. "The Woonerf Concept: Rethinking a Residential Street in Somerville." National Association of City Transportation Officials. Accessed October 02, 2017. <https://nacto.org/references/collarte-natalia/>.

Comebackcity.us. "Part Three Improvements." Jones Falls Trail. Accessed October 19, 2017. <https://jonesfallstrail.us/2015/09/02/jones-falls-trail-part-three-improvements/>.

Davies, John and Michael Kelly. *Healthy Cities: Research and Practice*. London: Routledge, 1993.

DeJean, Joan. *How Paris Became Paris: The invention of the Modern City*. 1st U.S. ed. New York: Bloomsbury, 2014.

Drady, Anne. *Druid Hill Park: The Heart of Historic Baltimore*. Lecture II, 150th Anniversary of Druid Hill Park at the Maryland Historical Society. Oct. 14, 2010. Accessed May 6, 2017: from: <http://www.druidhillpark.org/history-of-druid-hill-park.html>.

Frank, Lawrence, Peter Engelke, and Thomas Schmid.. *Health and Community Design: The Impact of the Built Environment on Physical Activity*. Washington, DC: Island Press, 2003.

Frumkin, Howard, Lawrence Frank, and Richard J. Jackson. *Urban Sprawl and Public Health Designing, Planning, and Building for Healthy Communities*. Washington: Island Press, 2013.

Ewing, Reid, and Otto. Clemente. *Measuring Urban Design : Metrics for Livable Places*. Metropolitan planning + design; Metropolitan planning + design. Washington, D.C.: Island Press, 2013.

Gardner, Robert. Crime Prevention Through Environmental Design. Revised from *Security Management Magazine*, April 1981. Accessed June 21, 2017. <http://www.crimewise.com/library/cpted.html>.

Gehl Institute. "Announcing the winners of our Open Call!" Gehl Institute. September 11, 2017. Accessed December 16, 2017. <https://gehl.institute.org/work/announcing-winners-open-call/>.

Gehl, Jan. *Cities for people*. Washington, DC: Island Press, 2010.

Gehl, Jan. *Life between buildings: Using public space*. New York: Van Nostrand Reinhold, 1987.

Hagan, Susannah. Resilient cities. *Architectural Review*, 237(1418), 97-105 (2015). Accessed May 23, 2017. <https://search.proquest.com/docview/1735893083?accountid=14696>

Jacobs, Allan B.. *Great Streets*. Cambridge, Mass.: MIT Press, 1993.

Jacobs, Jane. *The death and life of great American cities*. New York: Random House, 1961.

Kondo, Michelle C., Eugenia C. South, and Charles C. Branas. "Nature-Based Strategies for Improving Urban Health and Safety." *Journal of Urban Health* 92, no. 5 (2015): 800-14. doi:10.1007/s11524-015-9983-y.

Lawler, Kathryn. *Transforming Senior Centers into 21st Century Wellness Centers*. Publication. Louisiana State Office, American Association of Retired Persons. Louisiana: AARP, 2011. 1-33. Accessed April 14, 2017. <https://www.artsmidwest.org/sites/default/files/MeaningfulExperiencesAgingAudiences-Handout2.pdf>

Lind, Diana. "Civic Lesson: New Social Infrastructure." *Architectural Record*. Apr. 1, 2017. Accessed May 6, 2017. <http://www.architecturalrecord.com/articles/12484-civic-lesson-new-social-infrastructure>.

Lopez, Russell P.. *The Built Environment and Public Health*. 2nd ed. Chichester: John Wiley, 2012.

Lydon, Mike, and Anthony Garcia. 2015. *Tactical Urbanism : Short-Term Action for Long-Term Change*. Washington, DC: Island Press. doi:10.5822/978-1-61091-567-0.

Lynch, Kevin. 1960. *The Image of the City*. Publications of the Joint Center for Urban Studies. Cambridge, Mass.: MIT Press.

Masi, Christopher, Hsi-Yuan Chen, Louise Hawkley, and John Cacioppo. "A Meta-Analysis of Interventions to Reduce Loneliness." *Personality and Social Psychology Review* 15, no. 3 (2011): 219–266.

Merriam-Webster's Collegiate Dictionary. 11th ed. Springfield, MA: Merriam-Webster, 2003.

MIIIC/A Commnuications. "MICA: Maryland Institute College of Art." Facts & History | MICA. Accessed September 4, 2017.
https://www.mica.edu/About_MICA/Facts_and_History.html.

MIIIC/A, Communications. "Campus Enrollment Is Largest in College's History." Maryland Institute College of Art News. August 13, 2010. Accessed November 16, 2017.
https://www.mica.edu/News/Campus_Enrollment_Is_Largest_in_Colleges_History.html.

Mindful Moment Program | Holistic Life Foundation. Accessed July 8, 2017.
<http://hlfinc.org/programs-services/mindful-moment-program/>.

Montgomery, Charles. 2014. *Happy City: Transforming Our Lives through Urban Design*. First paperback edition. New York: Farrar, Straus and Giroux.

Ndc-md-org. "West North Avenue Streetscape Conceptual Master Plan." The Neighborhood Design Center. Accessed May 14, 2017. <http://www.ndc-md.org/west-north-avenue-streetscape-conceptual-master-plan/>.

Osborn, John. Geospatial Mapping Confirms The Stress Of Urban Blight And Other Public Health Problems. *Forbes*, (2015). Accessed Mar. 8, 2017:
<http://www.forbes.com/sites/johnosborn/2015/07/30/the-stress-of-urban-blight-and-other-public-health-impacts-confirmed-via-geospatial-mapping/2/#4e4eff277171>

Owens, Cassie. Reconnecting Urban Planning and Public Health. *Next City*. Accessed Mar. 8, 2017: <https://nextcity.org/daily/entry/urban-planning-public-health-collaborating>

Perry, Clarence Arthur, Wayne Darlington Heydecker, E. P Goodrich, Shelby M Harrison, Thomas Adams, Edward M Bassett, and Robert Harvey Whitten. *Neighborhood and Community Planning*. Regional Plan of New York and Its Environs, V. 7. New York: Regional plan of New York and its environs, 1929.

Pietila, Antero. *Not in My Neighborhood: How Bigotry Shaped a Great American City*. Chicago: Ivan R. Dee, 2010.

Rodriguez, Amardo. *Communication, Space, & Design : The Integral Relation between Communication and Design*. Lanham, Md.: Hamilton Books, 2005.

Rassia, Stamatina Th., and P. M. Pardalos. *Sustainable Environmental Design in Architecture : Impacts on Health*. Springer optimization and its applications, v. 56; Springer optimization and its applications, v. 56. New York, NY: Springer., 2012.

Sallis, James, Adrian Bauman, and Michael Pratt. "Environmental and Policy Interventions to Promote Physical Activity a a This Work Was Prepared for the CIAR Conference on Physical Activity Promotion: An ACSM Specialty Conference." *American Journal of Preventive Medicine* 15 (4) (1998): 379-397. doi:10.1016/S0749-3797(98)00076-2.

Saving Places – National Trust for Historic Preservation. Accessed 8 May, 2017.
<https://savingplaces.org/places/sf-embarcadero#.WRBt4VPyuRs>.

Sharp, Sandy. Accessed 12 May 2017. http://stonyrun.org/wp-content/uploads/2012/11/olmstedian_wymanPark_2011-v19-2_opt.pdf. May 5, 2017

South, Eugenia C., Michelle C. Kondo, Rose A. Cheney, and Charles C. Branas. "Neighborhood Blight, Stress, and Health: A Walking Trial of Urban Greening and Ambulatory Heart Rate." *American Journal of Public Health* 105, no. 5 (2015): 909-13. doi:10.2105/ajph.2014.302526.

Smith, Mark K. "Community centres (centers) and associations: their history, theory, development and practice." Infed.org. December 31, 2012. Accessed September 18, 2017.
<http://infed.org/mobi/community-centers-and-associations/>.

Thaler, Richard H, and Cass R Sunstein. *Nudge: Improving Decisions About Health, Wealth, and Happiness*. New Haven, Conn.: Yale University Press, 2008.

"The Six Dimensions of Wellness." National Wellness Institute. Accessed April 22, 2017. <http://www.nationalwellness.org/>.

Wates, Nick. *The Community Planning Handbook : How People Can Shape Their Cities, Towns & Villages in Any Part of the World*. Second edition. Earthscan Tools for Community Planning. New York, NY: Routledge, 2014.

Winston, Anna. "The High Line is a pulling back from architecture, say Diller and Scofidio." *DeZeen*. Nov. 3, 2014. Accessed May 8, 2017: <https://www.dezeen.com/2014/11/03/elizabeth-diller-ricardo-scofidio-interview-high-line-new-york>.

Wenger, Yvonne. "City rec center: a refuge for kids in West Baltimore." *Baltimore Sun*. Accessed April 22, 2017: <http://www.baltimoresun.com/news/maryland/baltimore-city/bs-md-ci-west-baltimore-recreation-20150521-story.html>.

Wolf, Peter M, and American Federation of Arts. *The Future of the City: New Directions in Urban Planning*. Whitney Library of Design. New York: Watson-Guption Publications; for the American Federation of Arts, 1974.

Zaleski, Andrew. "Can a Baltimore Neighborhood Avoid the Pitfalls of Gentrification?" *Next City*. August 4, 2014. Accessed July 16, 2017. <https://nextcity.org/daily/entry/gentrification-baltimore-station-north-arts-greenmount-west>.